Marcuse

Bokina, John, Lukes, Timothy J.

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A growing and mostly justifiable anxiety regarding the difficulties in safely, equitably, and sufficiently distributing essential goods and services has dampened utopian thinking. Marx’s objections to utopian socialism focused on misdirected strategy. Those objections have been replaced with deeper concerns about the ability of the ecosystem, much less a particular political structure, to ever condone happiness. The response, by Habermas and his ilk, has been to cut losses and dig in.

This tactic has spawned detractors, thereby revitalizing admittedly fragile utopian considerations. In the wake of Habermas’s ideal speech situation comes a nagging irritation with the tactic of partitioning free activity in an effort to preserve it. Notwithstanding the ecstasy of closet Aristotelians and incorrigible taxonomists, there is a growing suspicion that certain human activities are prematurely categorized as necessary evils, unnecessarily condemning normative constructs to permutations of a quasi-good life.

Herbert Marcuse, on the other hand, concedes nothing. His vision of a pacified existence does not tolerate dissonant partitions. While his discussions of a liberative technology foretell of a playful natural world, susceptible to and compatible with free human activity, his work on Freud dispels doubt that the human psyche could handle such freedom. What makes Marcuse’s utopianism especially topical, however, is that he con-
cedes as little to optimism as he does to premature resignation. That his intermittent utopian musings punctuate the most formidable and clinical assessments of the obstacles to human freedom should endear him to the new wave of restless pessimists.

In this essay I want to construct a high-technology bridge between the dissatisfaction with concessions to feasibility and the fragility of contemporary utopian thought. Although tempted to transport Marcuse's critical discussions to new and eminently legitimate anxieties regarding the proliferation of high technology, I choose to isolate hopeful developments that substantiate Marcuse's sometimes cryptic projections regarding the more sanguine possibilities of technology. That Marcuse's insights could simultaneously support wider reservations and renewed hope should not be surprising. After all, his mechanisms of qualitative change, whether psychic or political or cultural, are based consistently on the prospects of an escalating tension between the consciousness of enhanced possibilities and ever more formidable conventional obstacles.

Attempting to isolate within extant productive forces themselves the most potentially disruptive elements, Marcuse states that, "above all, the technification of domination undermines the foundation of domination." Rather than inextricably linking technology and exploitation, Marcuse identifies aspects of technology that ultimately expose and resist repression: "Technification of domination means that if we rationally think through the technological processes to their end, we find that they are incompatible with capitalist institutions." Since Marcuse spoke those words, concrete developments in technology allow us to examine advances in technological processes without relying only on "thinking them through." I think that aspects of contemporary technification show an enhanced compatibility with, if not contribution to, pacification and thus to a renewed interest in utopian thinking. From the promontory of Silicon Valley, I argue that recent developments in high technology render Marcuse's utopian musings more formidable in the face of popular reservations. Specifically, I want to show that technology is moving away from narcotic, ascetic, and elitist postures. Instead, technology is susceptible to what Marcuse calls an "aesthetic reduction," in which technology conforms to ontological rather than exploitative priorities.
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Mickey Mouse Technology

Following Husserl, Hannah Arendt laments the contribution of technology to *The Human Condition.* She argues that since the discovery of the telescope and the fracturing of the anthropocentric universe, we have been plagued by a debilitating disorientation that favors the self-contained validity of a mathematical formula to the ambiguity of considering an appropriate human existence. To assuage our existential doubt, we sacrifice thinking to making; we engineer human artifacts that reinforce the reliability of our calculations. We digitalize the sensuous and formalize the ambiguous.

Recall, painful as it might be, the day when the local pub’s pinball, air hockey, and foosball apparatuses were displaced by black-and-white screens projecting images more granular than conglomerate feldspar. Pong, the electronic equivalent of Huxley’s soma, pacifies its clientele in mindless, addictive, isolated encounters. The tradition is ably maintained by Nintendo and its clones. This is high technology as narcotic, as a retreat from life and its vicissitudes. Like life inside Zamiatin’s Green Wall, insecurity and eccentricity are sacrificed to the replication of safe and familiar conventions. We play Pong while Rome burns.

Technology as artificial cloister seems axiomatic to those of us whose first space odysseys involved pristine Zarathustrian waltzes through gleaming airlocks, with eerie libretto courtesy of an inaccessible digital cyclops. Yet, in popular culture at least, there is evidence that technology is percolating through increasingly porous partitions. Forsaking the clinical demeanor of HAL and Dave, Sigourney Weaver more recently cavorts in her underwear, flippantly allowing deviled poultry to dribble from its pouch onto her unprotected control panel. High technology no longer warrants the protection of the garage. Like the automobiles they replaced, our devices are left out on the driveway at night to collect the deposits of domesticity. The space shuttle is now greeted with fanfare reserved for a Greyhound pulling into Cleveland Terminal. For better or worse, technology is growing indistinguishable from its environment.

This damages Jean Baudrillard’s colorful expansion of Husserl, Zamiatin, and Arendt. For Baudrillard, the lure of high technology is its ability to construct synthetic hyperreal alternatives to reality. Disneyland supplies the appropriate metaphor. Like Arendt’s technology, Disneyland
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offers clean, safe, and simple simulations, designed to distract us from surrounding ambiguity. We need a separate technological universe, we are told, to provide sanctuary from the uncertain counterpart. The more tangible Disney sanctuary in Anaheim exists only to help convince us that its more pervasive cultural counterpart is something other than an artifact. If we have to visit Disneyland, we must not live in it. For Baudrillard, technology is Disneyland writ large. Yet just as the hermetic other of technology breaks down as 2001 evolves into Alien, so does the cachet of sovereignty and sanctuary erode as Disneyland becomes Disneyworld. The famous Orange County parking lot, providing protection and security to its regressing clientele, is replaced in Florida by a ring of golf courses and wetland habitats. Asphalt moat has become an unguarded buffer, as patrons lose track of boundaries. Simulations, although fanciful, are less frail. The attempt to distinguish reality from simulation, even if disingenuous, is fading—replaced by a new confidence in their compatibility.

The Aesthetic Reduction

Not that Herbert Marcuse would embrace Mickey Mouse under any circumstances. Marcuse does, however, anticipate the time when technology can no longer maintain its dependence on fables of an inscrutable and antagonistic natural world. Although often cataloging narcotic and diversionary propensities in high technology, Marcuse goes beyond Arendt and Baudrillard to anticipate the technological confrontation with more persistent concerns. According to Marcuse, the imminent but hardly monumental identity crisis of Disneyland technology can be averted by finally reducing technology to its fundamental aesthetic interest. That technique would ever serve art seems at first blush an outrageous proposition. Jacques Ellul, for instance, makes a compelling argument that, conversely, technique is preempting and eviscerating art. He demonstrates that in the high-technology environment generality replaces idiosyncrasy, standard operating procedure replaces subjectivity, and permanence replaces transcendence. Marcuse, sympathetic, nevertheless extrapolates the bankruptcy of these phenomena, entertaining the proposition that this technological reduction of art will in turn provoke an aest-
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**thetic reduction** of high technology, whereby technology conforms to the aesthetic priorities of noninstrumentality, the imaginative recombination of reality, and the embracing of ambiguity. In so doing, technology “revalidates” aesthetics and metaphysics by contributing to the feasibility of their aspirations. The time is coming when technique will recapture its repressed connections to aesthetics and metaphysics.

Until now, nature, both human and external nature, has been too hostile and inscrutable to be treated consistently with the kind of noninstrumental posture necessary to consider possibilities and options beyond given preoccupations and deficiencies. Thus, whimsical projects are isolated in the museum or the soul, and scientific projects purify reality by subjecting it to debilitating formularization. Advances in technology, however, reduce the ominousness of nature, thereby delegitimizing the adversarial posture of technology. “The conquest of Nature reduces the blindness, ferocity and fertility of Nature—which implies reducing the ferocity of man against Nature.” As technology supplies the ability to predict and replicate natural phenomena, it loses its defensive character and is free to join the aesthetic practice in the consideration of alternatives.

Technology thereby undergoes a reduction since it would be free of the unessential burden of resisting nature. Released from these external impositions, technology could return to its origins: “The rationality of domination has separated the Reason of science and the Reason of art, or, it has falsified the Reason of art by integrating art into the universe of domination. It was a separation because, from the beginning, science contained the aesthetic Reason, the free play and even the folly of imagination, the fantasy of transformation.” For Marcuse, science, purified of imposed instrumentality, displays the same interests in unencumbered musing and imaginative transcendence that are now vicariously protected in aesthetic pursuits.

**The Evidence**

Indeed, there are signs that technology is being relieved of its responsibility to withdraw and fortify and is instead approaching and appreciating the ambiguities of existence in a way that brings an aesthetic reduction closer. Granted, the “personal” computer may offer seductive retreat,
but like Pong, the personal computer is a relic of the past. With the burgeon­ning meld of computer and communications technology, devices and their operators can hardly stand alone and detached. Network technology has opened vast information resources, and participants are able to exchange opinions and questions at a breathtaking pace. Colleagues in the field of comparative politics knew of the attempted coup in Venezuela as it was happening, information provided via network by a participant observer. That the world has been rendered so accessible breaks down anxieties about its ultimate inaccessibility, if not its ultimate harmony.

Cockpit simulators, architectural imagers, and three-dimensional acoustic scanners embrace reality rather than escape it. It is hardly a formularized retreat from life when one of the most promising applications of virtual reality is to provide a congenial forum wherein those with and without physical disabilities can interact free of stigma and isolation. It is hardly a mathematical diversion when three-dimensional imagers are used to simulate the response of a disease-bearing enzyme to a new drug. And it is hardly a chasm between machine and organism when the newest generation of microprocessors consists of living, organic molecules, recently revealing a potential for employing human, "fuzzy" logic. Today, technological success is measured by the extent to which technology integrates ambiguity into its projects, not by the extent to which ambiguity is resisted.

Technology is undergoing a demystification. This is a symptom of the collapsing distinction between artifact and existence; we no longer are compelled to hide amid our formulas. Technology has facilitated the collapse. While admittedly producing its own dark and scary corners, it has illuminated and pacified sources of considerable anxiety. Fear of the forest has been replaced by remorse for not having fully appreciated its bounty. The yew tree gains new status as provider of anticarcinogens, inspiring investigation of the more than 95 percent of plant species that have never been tested for medicinal properties.

Technology is thus brought closer to the more honest and lasting concerns of humanity, which no longer seem alien to nature. Driven by a new impetus, "the rational transformation of the world could then lead to a reality formed by the aesthetic sensibility of man. Such a world could (in a literal sense!) embody, incorporate, the human faculties and desires to such an extent that they appear as part of the objective determinism of
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nature—coincidence of causality through nature and causality through freedom.” When arguments for the compartmentalization of technology can no longer be justified, the aesthetic reduction of technology provides an excellent framework within which the technical transformation of the world can be fruitfully investigated. No longer cloistered amid its pristine formulas, technology is showing signs of embracing, enveloping, and enhancing reality in ways previously reserved for the aesthetic oeuvre.

Technology and Sensuality

Perhaps the most distressing characteristic of “unreduced” technology is its association with asceticism. With shields depleted, warp drives wilted, and Klingons closing in, Captain Kirk inevitably solicits the cool, rational advice of his “science” officer, whose emotions have been Vulcanized, save for a few human, “feminine” foibles. Sensuality, the Bones influence, is depicted as a diversion, an irritating disruption of technical efficiency. This is the efficiency of Ulysses, the great “strategist,” who resists the seduction of the sirens by relying on his crew (in Freudian terms, the brother clan) to maintain his attachment to his ship and to the serious, technical work that awaits him.

Things weren’t much different in 1984, in which sensuality is a mortal threat to the purveyors of technology and sensual encounters are undertaken only in the blink of Big Brother’s eye. Society, as electronic circuit, discharges individual power with a relentless circulation of system messages. The body, then, as the clearest manifestation of individuality, surrenders to system logic and system maintenance. Confronted with the dreaded rats of Room 101, Winston imagines Julia’s body as an alternative target for his phobia, and he begs for the exchange. In this painful forsaking of his confidant, he nevertheless appreciates the resistance capabilities of discrete, autonomous physical entities.

Although Marcuse consistently indicts technology for its role in separating “reason” from sensuality, again he reminds us that his dissection of technology is not condemnatory. “Is it still necessary to repeat that science and technology are the great vehicles of liberation, and that it is only their use and restriction in the repressive society which makes them into
Having overcome the inscrutability of nature, technology could actually contribute to the legitimation of the sensate. "Already today, the achievements of science and technology permit the play of the productive imagination: experimentation with the possibilities of form and matter hitherto enclosed in the density of unmastered nature." The aesthetic reduction of technology at once demands and facilitates the reduction of "the ferocity of nature," thereby condoning investment in human sensuality and distinctiveness. And, again, there is evidence of such progress.

Although I am not yet prepared to speak for the quality of the experiences, these days one is as likely to encounter high technology in the company of Bacchus as in the sterile temples of Apollo. (With exquisite irony, an underground collective of women science-fiction writers has expanded the relationship of Spock and Kirk into the realm of the carnal.) Technology promoters no longer demand the sacrifice of sensuality. The cybernerd, whose wilted libido surfaces only while inserting plasticine pen pack in its plaid polyester refuge, has been preempted by the cyberpunk, to whom technology is more a hothouse habitat for kinkiness. *Mondo 2000,* the slick journal that offers the neophyte a window into cyberpunk, promotes, among other things, smart drugs; unlike their predecessors, these drugs enhance the sensual by releasing rather than numbing the cerebral. Or one might be drawn to "‘Teledildonics: The Art of Virtual Sex," which discusses the sensual possibilities of virtual reality. Meanwhile, aspiring terminators chew on *Cybergenics* as they go through their paces on interactive treadmills, and new wave glitterati attend "‘raves," which mingle experimental music and laser spectacles. Primitive and salacious as these phenomena may be, they nevertheless represent a cultural willingness to integrate the technological and the sensate.

And then there is the burgeoning integration of art and technology, which admittedly has developed unevenly. For years, high-tech art was conceived as a collaboration of distant interests. Robert Rauschenberg felt it necessary, in 1966, to collaborate with physicist Billy Klüver to produce *Nine Evenings: Theater and Engineering.* The project was a disappointment, as were most that were born of a mixture, rather than a compound, of expertise. Only when artists themselves, including Rauschenberg, began to feel more comfortable with their instruments did a more interesting product emerge. And now, postmodern artists await with
informed eagerness the next generation of Silicon Graphics display terminals.

Jenny Holzer illuminates a Mitsubishi Diamond Vision 2000 screen, mounted on a tractor trailer, to broadcast her imaginative insights. Meanwhile, Lynn Hershman employs interactive videodisc technology in her art, inspiring infinite permutations of participatory creativity. Gretchen Berder surrounds her audience with provocative images from twenty-four computer monitors, three film screens, and eight video channels. Adele Shtern scans drawings into a personal computer, electronically manipulates the images, and produces the final product on a laser printer. Ulrike Rosenbach videorecords her responses to various images from history and popular culture. And perhaps the most famous of these technoartists, Laurie Anderson, fuses multiple technologies and art forms in her stunning performances.17

Of course, an animated technology is no panacea. If the stupor of Saturday night at the Dew Drop Inn continues to be the most popular and legitimate outlet for eros, there is little chance that technical avenues of sensual expression will be any more complex or intriguing than their more traditional predecessors. But then again, merely propagating outlets of sensual expression may be progressive. That human sensuality is presently so often absorbed in banal or exploitative pursuits may be partly due to the limited sensual releases available in contemporary technological society. That war games are the first prototypes of virtual reality ought not condemn technology’s potential in a more liberated setting. Like art, technology is capable of complicating and sublimating sensuality. This is the key to Marcuse’s ultimate integration of art and technology. Technology does not merely come to tolerate the senses; rather, it can play a crucial role in encouraging and enhancing them.

The Aesthetic Reduction of Power

Clearly, there is a possibility that certain vested interests can profit from an adversarial relationship with nature. Much of the vituperation of One-Dimensional Man is reserved for those who exploit the anxiety of inscrutable nature. It is no surprise, then, that Marcuse links the aesthetic reduction of technology to a “reduction of power.”18 No longer legitimized
by their courageous domination of the fearful externality, the technological elite is ultimately vulnerable.

In his essay, "Some Social Implications of Modern Technology," Marcuse isolates the "one point at which the technological and the critical rationality seem to converge." Although New Class harbingers caution a displacement of the industrial elite by a cadre of more refined technical experts, Marcuse anticipates the growth of technology leading to a "democratization of function," whereby the technological environment facilitates rather than undermines social equality. It begins with a highly circumscribed equality, tolerated only within a technological environment of strictly "limited personalities." However, the elite structure that imposes limits and maintains superior control becomes increasingly irrelevant to the technological environment, potentially weakening the control. Thus, there is room for technical democratization to diffuse into other areas:

The standardization of production and consumption, the mechanization of labor, the improved facilities of transportation and communication, the extension of training, the general dissemination of knowledge—all of these factors seem to facilitate the exchangeability of functions. It is as if the basis were shrinking on which the pervasive distinction between "specialized (technical)" and "common knowledge" has been built and as if the authoritarian control of functions would prove increasingly foreign to the technological process.

This metamorphosis of specialized into common knowledge defies New Class critiques, which hold that although the monumental personality may be in decline, the magnate has yielded to a more sober, deliberate, and cooperative plurality, whose capital is information and whose competitive edge is the glamourless study of markets and materials. The New Class argument maintains that, although capable of a "business" acumen and a passable familiarity with a simple product, captains of industry rely increasingly on specialized lieutenants when simpler products are inevitably displaced by sophisticated technological implements.

The key to the New Class argument is that complex technology encourages an ever-widening distance between those who can keep up and those who can't. This is a common anxiety.
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sued the memoirs of one of England’s last wheelwrights, undoubtedly intended to provoke comparisons. George Sturt voices nostalgic pride at the convergence of craft, client, and artifact: “And so we got curiously intimate with the peculiar needs of the neighbourhood. In farm-waggon or dung-cart, barley-roller, plough, water-barrel or what not, the dimension we chose, the curves we followed (and almost every piece of timber was curved) were imposed upon us by the nature of the soil in this or that farm, the gradient of this or that hill, the temper of this or that customer or his choice perhaps in horseshoe.” Contrast this, we are asked, to the device of the present, which is too complicated to be understood by more than a handful of people and is so widely distributed that even if it could be understood by the consumer, it would lack any of the former connections between maker, user, and use. As a further example, John Kenneth Galbraith excavates the résumé of Henry Ford’s collaborator, James Couzens, who in that simpler time could master the finer points not only of automobile production but of the locomotive and coal industries as well.

Yet is there necessarily an intractable distinction between the technologist and the craftsman? First of all, is the branch of a tree used by the wheelwright really all that primitive and simple? Does the average wheelwright have any idea of the importance of the tree’s cambium layer, or of the complexity of the photosynthetic process? No doubt a botanist would argue vehemently for the sophistication of a plant over that of a microcircuit. In fact, complexity is often more a function of perception than reality, and it could be that technology bears the reputation for complexity only because it is not so familiar to us as is the tree branch. It follows, then, that as technology works its way into society, a chip will be perceived with about as much reverence as a two-by-four.

A promenade through Fry’s electronic supermarket in Sunnyvale, California, is ample illustration. Just between the Hostess Twinkies and the Hot Rod Review is the newest in super VGA graphics boards. Math coprocessors are tossed around like so many bell peppers. (Is it accidental that Fry’s is a subsidiary of a grocery store chain?) In part because the barrier of complexity is being broken, technology is being arranged in ways that clearly take into account the “gradient of the hill” of the prospective customer. Zen therapists, depositing their angst with the entry guard, boldly harvest components for a system sure to satisfy their crea-
tive idiosyncracies. It may not be so important, then, that the user understand fully the intricacies of the etched circuit as it is that the user is comfortable with the circuit and can adapt it to his or her purposes.

Alvin Gouldner, expanding on the work of Edward Shils, effectively isolates the "central ideals" of the New Class and, in so doing, illuminates the basis of its authority. The modern intellectuals, above all, hope to establish their "autonomy" and "self-groundedness," so that they may delineate and strengthen their burgeoning guild against the obsolescent but irritating competition of brute force, tradition, and irrational impulse. The political ammunition of the New Class is its "rules," so rigorous, complex, and esoteric that they demand ever more specialized and experienced interpreters. In fact, Gouldner asserts that the growth of these scientific rules inspires the creation of a separate language he calls "careful and critical discourse," which impresses in order to oppress.

Yet Gouldner, Galbraith, and other New Class investigators do not fully appreciate the tenuousness of authority based on shibboleths rather than brute force. The prestige of the New Class lasts only as long as the popular perception that a hostile environment can be traversed safely only with the assistance of some gifted technological guru. Marcuse recognizes that there will be a point at which the "authoritative control of function," based on the belief that specialists are really special, will surrender to a "democratization of function," in which technological specialization remains but is no longer seen as anything extraordinary. Wide social deference becomes limited technical deference when advances in education, transportation, and communication promote a general familiarity with technology. Accessibility and acclimation prevent dominance by a privileged few.

In a 1988 Roper Organization survey, respondents were asked whether science could be trusted to solve major social problems. Only 24 percent of the general population responded positively. But more interesting yet, when technology practitioners (scientists, technicians, and teachers) were separated from the rest of the population, only 16 percent concurred that science can be trusted to solve social problems. That technical expertise is perceived as insufficient to tackle contemporary problems, and that the perception is more prevalent among technocrats themselves, tends to disrupt assertions about the achievement of elite status—especially an elite status that is supposedly based on reputation.
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The New Class has recently inspired renewed and anxious interest, and a new populism has been suggested as antidote. For those interested in battling a mostly vanquished enemy, this battle may have appeal. Marcuse correctly detects in technocracy itself an ultimate propensity to participatory, “populist” manifestations. Indeed, the breakdown of technological aloofness may be most dramatic in the response to AIDS. Although one might expect the intimidating intransigence of the disease to rekindle patterns of meek deference to the technological community, AIDS patients, encouraged and enlightened by vast networks of informed sympathizers, resist technological objectification and participate in, rather than submit to, their treatment. “Their struggle represents a counter-tendency to the technocratic organization of medicine, an attempt at a recovery of its symbolic dimension and caring functions.”

Clearly, this is the “authoritarian control of functions” proving to be “increasingly foreign to the technological process.”

Conclusion: Hyperindividuality

New developments in technology support the reduction of technological defensiveness, technological prudishness, and technological elitism. That does not mean there are not new concerns of some gravity. In fact, the aesthetic reduction of technology, anticipated by Marcuse, may challenge traditional justifications of the very formation of society. Kant argues that people are bound together in a shared system of morals and meanings out of the fear of an inscrutable natural surrounding and out of the satisfaction of imposing a human meaning on what is ultimately unfathomable. Our inability to capture “pure reason” prompts us to impose a “practical reason” on which we can base action. The more the system is shared, the more the subscribers feel secure that they are leading legitimate lives.

Interacting with a more predictable, less intimidating nature fosters security without the need for widespread concurrence. Technology is no longer seen as munitions with which armies of obedient citizens do battle with their antagonistic surroundings. Rather, technology assists in the release from an obligation to connect experiences in a monolithic, defensive structure of meanings. The result is not a collection of submissive drones.
but a cacophony of jitterbugs. Connections are shunned, attention spans are constantly strained, and time is superfluous. With Indiana Jones as archetype, the life of this hyperindividual can be severed at random and arbitrarily respliced without loss of continuity.

The hyperindividual is decidedly postmodern, refusing to judge one “text” as superior to another, instead arguing that meaning and value are only relevant within experiences rather than between them. Aspects of this individual have recently been described well by Allan Bloom, Saul Bellow, Robert Bellah, and other participants in the most recent episode of American self-flagellation. The accounts are less satisfying, however, when they attempt to isolate causes—political, educational, spiritual—with little or no attention paid to the social consequences of modern technology.

Marcuse can help move the debate about technology from obsolescent attention to its ascetic, elitist, or narcotic aspects to more legitimate concerns about connection and value. The latter, hardly accidentally, are the issues of postmodern theory, and, not surprisingly, Marcuse has a good deal to say about the allure of relativism and the deficiencies of what I call hyperindividuality. Thus, contributions to this volume from Paul Breines and Ben Agger, which address Marcuse’s anticipation of postmodern dilemmas, ought to be read with an eye toward their excavation of new and formidable challenges to developments in technology. We do not have so much anxiety about high technology that we can afford to misdirect it.29

Notes

7. For a more thorough discussion of the meaning of aesthetic expression to
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10. I prefer to interpret Marcuse's use of the term "conquest" here in the sense of a student "conquering" a subject rather than a monarch conquering a territory. However, there are times when Marcuse's language betrays his most daring proposals.


16. Ibid., 49.

17. While visual artists are becoming more comfortable with technology, there is a parallel movement in architecture to integrate sensual, noninstrumental, erotic priorities into what has become a mostly technical pursuit. See Alberto Perez-Gomez, *Polyphilo, or the Dark Forest Revisited: An Erotic Epiphany of Architecture* (Cambridge, Mass.: MIT Press, 1992).


27. Andrew Feenberg, “Subversive Rationalization: Technology, Power, and
Democracy," *Inquiry* 35 (1992): 319. Feenberg also discusses the Minitel project in France, whereby "the computer was politicized as soon as the government attempted to introduce a highly rationalistic information system to the general public. Users 'hacked' the network in which they were inserted and altered its functioning, introducing human communication on a vast scale where only the centralized distribution of information had been planned."

29. Thanks to Lori Bowman for her research assistance and to John Bokina for his always valuable editorial advice.