Who Will We Be in Cyberspace?

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To those who view America from other parts of the world, it must sometimes seem that we are a compulsively restless people, continually reinventing ourselves, renovating our ways of living at the drop of a hat. There seems to be no idea too extravagant, no project too far fetched that some sizable segment of the populace won't take up, try it out, see how it works. Birthplace of new ideas, discoveries, practices, styles, gadgets, and institutions, the United States has gained renown as a laboratory for the exploration of human identities and relationships that later spread to other parts of the globe.

The propensity to personal and social reinvention goes back to the earliest days of our national experience. In the middle 18th century, it seemed likely that the British monarchy and a stable monarchical way of life in the American colonies would endure forever. Rooted in notions of hierarchy, inequality, patriarchy, and highly structured relations between patrons and clients, monarchy gave people's lives meaning and coherence. But efforts to sustain this pattern sparked discontent and eventual revolt. The colonists' successful war against King George III was also a revolution in political culture, one that overthrew monarchy as a tightly woven fabric of human relations.

During their turn at the helm, leaders of the uprising, the founding fathers, did their best to create a new society, building political, legal, and economic institutions based on models adapted from the ancient republics. Individual liberty and consent of the governed became the guiding principles. But the political institutions of the republican system were to depend on the guidance of a small group of enlightened, virtuous men, people with great souls and abilities, an arrangement that many Americans found disagreeable. It did not take long, therefore, for the republican conception of social and political relations to itself be challenged by the proliferation of rules, roles, and relations far more democratic in character. By the early 19th century, Americans were again busily self-transforming, affirming that the promise of the country was for the mass of common working people to achieve material prosperity and genuine self-government (Wood, 1992).

In sum, a lifetime that stretched from 1750 to 1820 would have undergone a sequence of three radically different ways of defining what society was about, three ways of defining who a person was and where a person stood in the larger order of things. I call attention to this segment of American history to recall the fact that times of rapid transformation are not new to us. Today's zealots for the information age and cyberspace often insist that we are confronted with circumstances totally unprecedented, circumstances that require rapid transformation of society. That may be true in some respects. But it is also true that we Americans are past masters in reinventing ourselves and sometimes proceed thoughtfully to good effect.

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Since the middle 19th century, episodes of person and social transformation have focused as much upon people's relationship to technological systems as they have to political institutions. By now it is a familiar story: To invent a new technology requires that (in some way or another) society also invents the kinds of people who will use it; older practices, relationships, and ways of defining people's identities fall by the wayside; new practices, relationships, and identities take root. From that standpoint, as technological devices and systems are being introduced, it is important that those who care about the future of society to go beyond questions about the utility of new devices and systems, beyond even questions about economic consequences. One must also ask:

1. Around these instruments, what kinds of bonds, attachments, and obligations are in the making?
2. To whom or to what are people connected or dependent upon?
3. Do ordinary people see themselves as having a crucial role in what is taking shape?
4. Do people see themselves as competent, able to make decisions?
5. Do they feel that their voices matter in making decisions that will affect family, workplace, community, nation?
6. Do they feel themselves to be fairly treated?

These are issues about conditions that sustain selfhood and civic culture, issues that should always be addressed as technological innovations emerge. If we limit our attention to powerful technical applications, their uses and market prospects, we tend to ignore what may be the single most consequential feature of technological change, the shaping of the conditions that affect people's sense of who they are and why they live together.

In our time the most important occasion for addressing such questions is the digital transformation of an astonishingly wide range of material artifacts interwoven with social practices. In one location after another, people are saying in effect: Let us take what exists now and restructure or replace it in digital format. Let's take the bank teller, the person sitting behind the counter with little scraps of paper and an adding machine, and replace it with an ATM accessible 24 hours a day. Let's take analog recording and the vinyl LP and replace it with the compact disc in which music is encoded as a stream of digital bits. Or let's take the classroom with the teacher, blackboard, books, and verbal interchange and replace it with materials presented in computer hardware and software and call it "interactive learning" (as if earlier classrooms lacked an interactive quality). In case after case, the move to computerize and digitize means that many preexisting cultural forms have suddenly gone liquid, losing their former shape as they are retailored for computerized expression. As new patterns solidify, both useful artifacts and the texture of human relations that surround them are often much different from what existed previously. This process amounts to a vast, ongoing experiment whose long-term ramifications no one fully comprehends.

The opportunities and challenges presented by digital liquification have generated great waves of enthusiasm. Entrepreneurs are busily at work creating new products and services. Organizational innovators are experimenting with all kinds of computer-mediated collaborative work. Artists, even ones highly skeptical of information technology's overall effects, are exhilarated by the new varieties of aesthetic expression that have become available in computing and telecommunications. It is not surprise that the widespread rapture about computing has achieved ideological expression as well. The old bromides of Alvin Toffler's simplistic wave theory of history, barely fizzing a cou-

ple of years ago, have received a new injection of seltzer in the right-wing manifesto, "Cyberspace and the American Dream: A Magna Carta for the Knowledge Age" (Dyson et al., 1994). In this and similar paeans to the digital age, there is a rekindling of the millennial expectations that often arise during times of technological and social change, accompanied by the ill-founded hopes of "mythinformation," for example, the expectation that the spread of information machines is somehow inherently democratic and that no one needs to lift a finger to achieve democratization and create a good society (Winner, 1986).

But along with the excitement and sense of limitless possibilities arise some serious misgivings. As the sweeping digital liquification of social practices and institutions proceeds, one sees closely associated processes of economic liquidation that erode the former livelihoods of many working class and middle class people. As jobs and activities and organizational structures undergo digital transformation, structures that were formerly funded are now defunded, liquidated as capital takes the opportunity to move elsewhere. In businesses, universities, government agencies, and other organizations, the connection between the introduction of new computing systems and widespread announcements of layoffs and downsizing seems obvious. Digital liquification has become the cultural solvent that enables financial and organization liquidation. In this process, whole vocations—secretaries, phone operators, bank tellers, postal clerks—have been eliminated or abolished or drastically reduced. During the two decades in which automation and information have entered their workplaces, the level of real wages for much of the population has declined. The erosion of income is no longer limited to blue collar and clerical workers. Recent manpower studies by the American Association of Engineering Societies show a decline in the real wages of technical professionals as well (Bell, 1995). Firms are laying off high-level, high-salaried senior managers and technical staff, hiring younger, cheaper workers right out of college. The infomated knowledge base of organizations provides a stable framework from which leaders of the firm can experiment with audacious programs in restructuring and reengineering.

Gurus on the business seminar circuit—Tom Peters, Daniel Burrus, Michael Hammar, James Champy, and the like—prefer to see these upheavals as an exhilarating challenge. Thus, Peters advises people in the throes of career change to embrace "perpetual adolescence" because "we all need to be in the leaping business these days" (Peters, 1994, pp. 301 and 308). Other observers describe these developments as potentially cataclysmic for much of the population, as the "end of work" and "end of career" present society with conditions for which it is ill prepared (Bridges, 1994; Rifkin, 1995; Glassner, 1994). Whatever one's anticipations on that score may be, it is certainly true that in our time some basic conditions of human identity and association are being powerfully redefined. Who will we become as such developments run their course? What kind of society and political order will emerge?

Rather than seek guidance on these matters from today's giddy manifestoes of cyberspace, perhaps we should consider relevant chapters in our own history, chapters in which technological transformation involved profound alterations in self and society, periods in which momentous choices about the future were up for grabs. Of particular relevance, in my view, are several recent studies by historians and social scientists that have tried to identify what is distinctive about human selfhood in what came to be called modern, industrial society. A number of scholars in widely different fields—David Hounshell (1984), Terry Smith (1993), Jeffrey Meikle (1979), David Noble (1977), Adrian Forty (1986), Ruth Schwarz Cowan (1983), Dolores Hayden (1981), Roland Marchand (1985), David Nye (1990), David Harvey (1989), and others—have looked at the first half of

20th century America, noticing such developments as the creation of the Ford assembly line, the spread of scientific management, the development of large, long linked systems in electricity, water supply, transit, telephone, radio, and television, seeking to explain how they achieved the form they did, how they were received by the populace as a whole, how the rise of the consumer economy with its appliances and other goods came to be defined as necessary for the good life, and how associated developments in advertising, industrial design, public relations, education, and other methods fields helped shape public opinion and channel social development.

What emerges from these studies that might be useful today? What can we take from them that might help us think about contemporary developments that link computing with society's future? I briefly underscore several issues that seem especially important.

One consistent finding in histories of the modern period is that power over the most important decisions about how technologies were introduced was far from evenly distributed. Those who had the financial and technical wherewithal to create new technologies in earlier decades of our century often found it feasible and desirable to mold society to match the needs of emerging technological systems and organizational plans. Many leaders in the corporate sector regarded society as mere putty that could be shaped with minimal resistance from the populace affected.

Greatest latitude for overt social control was present in the workplaces where employees were often seen as malleable, subject to the routines and disciplines of work. This attitude was clearly displayed in the paternalism of F. W. Taylor's *Principles of Scientific Management* and the practices it advanced. "In the past the man has been first," Taylor explained. "In the future the system must be first" (Taylor, 1911, p. 7). In Taylor's vision and in similar approaches to modern American management, the authority relations of modern industry were perfect clear. When a worker accepted employment at a particular firm, the worker was required to follow an intricate schedule specifying what to do and how to do it. The employer named the job, specified its content, and determined the extent to which the work required any knowledge or competence. Thus, as the workplaces of industrial society were organized, people were mobilized not only for productive tasks, but for fairly stable, predictable, reproducible identities as well. Such efforts carried a strong moral component. Cultural historians note that during the middle decades of the 20th century, virtues appropriate to the development of machines—productive order, efficiency, control, forward-looking dynamism—became prevailing social virtues as well (Smith, 1993).

For industrial leaders like Henry Ford, Henry Luce, and Alfred Sloan, men able to achieve an overview of unfolding developments, a key realization was that continuing economic growth required the mobilization of great numbers of people not merely as producers but as consumers as well. By the 1920s it was common for corporate planners to aspire to reach deeply into people's lives, offering items and opportunities for consumption along with carefully tailored images and slogans that helped depict identities, attitudes, and life-styles that could guide people's inclinations in home life and leisure. Industrial design, advertising, and corporate-sponsored journalism and public education combined with industrial planning to promote a series of strongly endorsed social role identities that were depicted in photos, newspaper and magazine articles, and school text books (Marchand, 1985). In Michael Schudson's apt summary, "Where buying replaced making, then looking replaced doing as a key social action, reading signs replaced following orders as a crucial modern skill" (Schudson, 1984, pp. 156–157).

In this light, historians Roland Marchand and Terry Smith note the widely displayed tableaux vivants of modern life, combinations of advertising text and photography that from the 1920s to 1950s depicted:

The executive in the office tower
The worker in the clean, well-organized factory
The housewife in her appliance filled kitchen
Children surrounded with goods for the little ones
The automobile driver speeding along a wide open highway

Find examples of historic ads (and ask students to find more current examples for their discussion sections)

The purpose of these images was to project possibilities for living in modern society at a time in which many of those possibilities were still novel. Crucial to the effect of these projections was a story about the world, a story in which people's orderly role in production was to be rewarded with an equally orderly, rational, modern role in consumption. Within well-managed corporate strategies that linked the shape of consumer goods to advertising slogans, photographs, magazine stories, and other widely promulgated inducements, people were encouraged to seek meaning and fulfillment within prescribed channels. It would be absurd to suggest that these efforts succeeded in determining the content of people's lives completely. But I think it is true to say that there were deliberate and effective moves to frame and to guide how ordinary people understood life's possibilities. One has only to live for a while in societies in which these accomplishments have not taken root—for example, prosperous societies in contemporary Europe in which consumerism as a way of life does not yet dominate the ways people understand self, family, and society—to appreciate the artificiality and pungency of modern American strategies of social control.

Histories of these developments clearly suggest that the basic terms of this social contract were nonnegotiable. The ideas and plans of everyday citizens were not regarded as crucial for corporate planning. In the advertisements and tableaux vivants, the future was always depicted something whole and inevitable. People were to be propelled forward by forces larger than themselves into a world that was rational, dynamic, prosperous, and harmonious. One visited spectacles like the 1939 World's Fair in New York to be swept up in the excitement of it all. There were no pavilions to solicit the public's suggestions about emerging devices, systems, or role definitions. As millions of visitors strolled through the fair, they learned how to orient themselves to changes in living that seemed to have their own undeniable trajectory.

Presenting the future in this way served an important purpose. Those making choices about the direction of social priorities and investments—for example, Robert Moses and other organizers of the New York World's Fair—had no desire to open the planning of sociotechnical innovations to make the process more inclusive. Spreading the broad umbrella of "progress" over the details of policy, economic and political elites were able to defuse public criticism. The well-managed social consensus that unfolding developments were basically nonnegotiable was reflected in the silence of public discourse about alternatives, for example, the almost complete absence of popular forums in print or elsewhere from the 1920s through the 1950s where the meaning of the new technologies and their consequences could be discussed, criticized, or debated.

Held out to the American populace as the ultimate promise of modern society was individual, material satisfaction. The modern world was to be a place in which personal desires would be fulfilled through the consumption of industrially produced commodities. So glorious was the expected bounty, that any request to negotiate its terms would have seemed positively impudent. Missing from the picture was any attention to collective goods and collective problems. Long-term social commitments and the social costs of "progress" were obscured by the belief that individual fulfillment was all that mattered. Thus, buying and driving this automobile would give the driver and family members a

sense of thrill and belonging. Then as now, the automobile was always shown on highways miraculously free of other vehicles, well-paved roads that seemed to extend infinitely, wherever happy drivers turned the steering wheel. As a 1930s ad for ethyl gasoline in the 1930s proclaimed: "There's always room out front" (Marchand, 1985, p. 362)

Another key finding from social and cultural studies of modernism takes note of the design of artifacts. Those in a position to make decisions were aware that as everyday folks looked at the novelties that bombarded them, they were apt to find these transformations complex and confusing. In that light, a commonly chosen design strategy was to conceal the complexity of devices, systems, and social arrangements and to make them appear simple and manageable. Thus, for example, streamlining and other varieties of shiny metal styling were adopted to complex, technical mechanisms within soothing, attractive surfaces. As people became comfortable with these forms, the workings of the artificial world that surrounded people seemed less and less intelligible. The same is true of the texts and pictures of advertising. Extremely simple solutions—often ones involving personal uplift with the aid of consumer purchases—were proposed for complicated, real-world problems. Eventually some of those complex problems—congestion, pollution, urban and environmental decay—emerged as difficult issues, made even more vexing by the fact that they festered for decades.

As we ponder horizons of computing and society today—for example, choices in the creation and use of computer networks on a widespread scale—it seems likely that American society will reproduce some of the basic tendencies of modernism:

- Unequal power over key decisions about what is built and why.
- Concerted attempts to enframe and direct people's lives in both work and consumption.
- The presentation of the future society as something nonnegotiable.
- The stress on individual gratification rather than collective problems and responsibilities.
- Design strategies that conceal and obfuscate important realms of social complexity.

Patterns of this kind persist because the institutions of planning, finance, management, advertising, education, and design that shaped modernity earlier this century are still extremely powerful. Occasional calls for resistance and reform by labor unions, environmentalists, consumer groups, feminists, and others have, for the most part, been neutralized or absorbed. Thus, for example, the push for ecological limits is repackaged as "Green consumerism" and demands for participation in workplace decisions rechanneled to become "empowerment" through the ownership and use of personal computers. Possibilities for self-conscious social choice and deliberate social action are often sidetracked to become obsessions focused on the purchasing and possessing of commodities.

As strong as these basic tendencies remain, however, it is doubtful that the world taking shape within and around today's information systems will simply reproduce the terms of previous decades. In fact, many of the forms of selfhood and social organization carefully nurtured for modern society seem ill-suited for conditions that increasingly confront Americans in the workplace and elsewhere. For example, the focus of personal identity based upon holding a lasting enduring job seems destined to become a relic of the industrial past (Glassner, 1994). Within the context of the global communications, global enterprise, lean production, organizational flexibility, the idea that one might become a permanent employee of one organization or even one industry is less and less sensible. Much blue collar and clerical work is now temporary. To an increasing extent even well-educated technical professionals are required to define themselves

as contractors able to move from project to project, task to task, place to place among many organizations. The assumption in computer-centered enterprises is no longer that of belonging to and being crucial to any enduring framework of social relations. To an increasing extent our organizations assume perpetual expendability. How people will respond to that, how they will recreate selfhood in an era in which everyone is expendable, could well become a far more serious issue in coming decades than even the often lamented decline of real wages.

Another crisis brewing in the information society has to do with where and how people will experience membership. For modernism the prescribed frame for social relations was that of city and suburb. People were situated geographically and expected to find meaningful relationships close to home. But today it is increasingly obvious that for sizeable, economically important segments of our society, attachment is no longer defined geographically at all. Many activities of work and leisure take place in global, electronic settings and that is how people define their attachments. Robert Reich, among others, worries that the symbolic analysts of today's global webs of enterprise are now shedding traditional loyalties to their fellow citizens, leaving the less well-to-do, the less well wired to suffer in decaying cities (Reich, 1991). Indeed, attitudes of this sort can be found in the sociopathic cyberlibertarianism of the 1990s as represented, for example, in the "Cyberspace and the American Dream" of the Progress and Freedom Foundation (Dyson et al., 1994) and in much of the hyperventilated prose of *Wired* magazine. What is affirmed in such thinking is a fierce desire for market freedom and unfettered self-expression with no expectation that inflated cyber-egos owe anything to geographically situated others. Increasingly prevalent conditions of work and communication seem to encourage the development of ways of being human that correspond to hypertextual movements on the World Wide Web. "Don't count on me for anything; I'm out of here with the click of a mouse." Key virtues expressed in this context no longer involve the staid pursuit of efficiency, predictability, and order favored in classic modernism. Valued now are protean flexibility, restless entrepreneurialism, and a willingness to dissolve social bonds in the pursuit of material gain. Of course, there are many social conflicts this breast-thumping individualism conceals. Many of those enthralled with globalization as the wellspring of economic vitality also bemoan "the weakened family," "collapse of community," and "chaos of the inner cities," failing to notice any connection. As the power of global computing expands, it seems increasingly difficult for computers at home to add 2 + 2 and get 4.

There are many, of course, who expect that desirable new forms of community will emerge, that people will use their computers and the Internet to forge new social relationships and identities, including ones that might bolster local community life. Time will tell whether those lovely hopes pan out. It's anyone's guess what sorts of personalities, styles of discourse, and social norms will ultimately flourish in these new settings. Will digital media sustain healthy attachments to persons both near and far away? Or will they foster insouciance, resentment, and mutual contempt that distance has spawned in other historical settings? If the habits of expression commonly found in mid-1990s Internet news groups are any indication, the kinds of interpersonal respect, civility, and friendship that formed the basis of traditional, geographically based communities seem ill suited to the Net. Frequently encountered on-line nowadays is a Nietzschean tyro for the 21st century: the irascible, self-absorbed, white male cyber-boor (Winner, 1995).

One feature of early 20th century modernism that American society seems likely to reproduce in years to come is the habit of excluding ordinary citizens from key choices about the design and development of new technologies, including information systems. Industrial leaders still indulge the old habit of presenting as faits accomplis what otherwise might

have been choices open for diverse public imaginings, investigations, and debates. In magazine cover stories, corporate advertising campaigns, and political speeches, announcements of the arrival of the Information Superhighway and similar metaphors are still pitched in the language of inevitability. Get ready for it folks, here it comes: the set-top box!

The Firesign Theater dramatized this predicament many years ago in a biting satire about an electronic future. In the sketch a fellow dressed like a clown gets onto a van headed to an enticing theme park. A recording intones: "Live in the Future! It's just starting now!" The traveler looks at the other people on the bus, squeaks his squeaker and comments: "You know, I think we're all Bozos on this bus." Much the same could be said of those corporate and political leaders who expect to herd the populace toward the on-ramps of "The Information Superhighway" with extravaganzas like those that promoted the unveiling of Windows 95.

These are matters in which people doing research on computing and the future could have a positive influence. If we're asking people to change their lives to adapt to the introduction of new information systems, it seems responsible to solicit very broad participation in deliberation, planning, decision making, prototyping, testing, evaluation, and the like. Some of the best models, in my view, come from the Scandinavian social democracies where a variety of social and political circumstances makes close consultation with ordinary workers and citizens a much more common practice than it is in the United States (Sandberg et al., 1992). Broad participation of this kind is warranted by principles of democracy and social justice, but it also makes sense because it is likely to produce better systems, ones that have a better fit with genuine human needs. Unfortunately, models for innovation of this kind have been seldom tried in the United States, perhaps because they are too democratic for those who oversee our intensely inegalitarian "market" system.

At the same time, it is fascinating to notice what even the modest forms of citizen response found in the tightly controlled contexts of market testing seem to reveal. Despite the enormous corporate and political push for high-definition television in the late 1980s, for example, the American public never warmed to the idea. After all, why would more lines on the screen be desirable? By the mid 1990s when the television industry discovered more lucrative uses for video bandwidth, the campaign for HDTV was discretely shelved. In a similar development, recent reports suggest that after all the hype about the version of the so-called information superhighway stressing interactive TV, companies have found that "consumers yawned in the face of its most hotly promoted applications—movies-on-demand and interactive home shopping" (Caruso, 1993). In contrast, what people seem to be excited about—a possibility that many socially concerned computer professionals have anticipated for a long while—are networks that have open architecture, networks of many-to-many communication in which people can be more than passive consumers of information, but also producers, creative actors able to tinker with new possibilities and perhaps give them a distinctive personal stamp. Denise Caruso, business writer for the *New York Times,* reports that corporate designers, sensing the public mood, have gone back to the drawing boards, setting aside the push for set-top boxes, and are now perfecting cable modems.

While it is encouraging to see the influence of the general populace crop up in this way, its expected contributions are always muted and indirect. The attitude of many leaders in the computing and telecommunications industry still seems to be that only they know what is good for their fellow citizens and that somewhere down the line they are going to enforce corporate closure on the shape of information systems, capture those markets, and place their distinctive brand on people's lives. As Caruso observes, "the

telephone companies . . . , preparing {their own} networks and services, agree that fiber co-ax is the right design" (Caruso, 1995).

How reassuring; evidently the "right design" is headed our way and again we have not had to lift a finger. Developments of this kind echo the first words of Jean-Jacques Rousseau's *Social Contract* written two centuries ago: "Men are born free, but everywhere they are in chains." An equivalent maxim today might be: "People are not born with brass rings in their noses, but much technological development quietly supposes that they are."

But why should we settle for effrontery so blatant? Rather than exclude the energy and ideas of the American populace, rather than try to predetermine what the horizons of computing and society will be, research and developments in computing ought to involve the public—ordinary people from all walks of life—in activities of inquiry, exploration, dialogue, and debate. Here computer professionals could, if they so chose, exercise much-needed leadership. While it is sometimes tempting to conclude that we are merely going "where the technology is taking us," or that social outcomes are and should be "determined by market forces," the fact of the matter is that deliberate choices about the relationship between people and new technology are made by someone, somehow, everyday day of the year. Persons whose professional work gives them insight into the choices that matter must be diligent in expressing their knowledge and judgments to a broad public. Otherwise they may find themselves employed as mere ranch hands, helping fit the citizenry with digital brass rings.

As the 20th century draws to a close, it is evident that, for better or worse, the future of computing and the future of human relations—indeed, of human being itself—are now thoroughly intertwined. Foremost among the obligations this situation presents is the need to seek alternatives, social policies that might undo the dreary legacy of modernism: pervasive systems of one-way communication, preemption of democratic social choice corporate manipulation, and the presentation of sweeping changes in living conditions as something justified by a univocal, irresistible "progress." True, the habits of technological somnambulism cultivated over many decades will not be easily overcome. But as waves of overhyped innovation confront increasingly obvious signs of social disorder, opportunities for lively conversation sometimes fall into our laps. Choices about computer technology involve not only obvious questions about "what to do," but also less obvious ones about "who to be." By virtue of their vocation, computer professionals are well situated to initiate public debates on this matter, helping a democratic populace explore new identities and the horizons of a good society.

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