

BEYOND TECHNOLOGY

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If we compare the six days of the Book of Genesis to the four billion years of geologic time, each day would equal 666 million years. On the last day of that week at 4 p.m. the reptiles appeared and at three minutes before midnight humans appeared. The industrial revolution began at 1/40th of a second before midnight! In presenting this time comparison, conservationist David Brower then observed:

We are surrounded by people who think what we have been doing for 1/40th of a second can go on indefinitely. They are considered normal — but they are stark, raving mad!²

The dominant, prevailing position in political discourse and academe is firmly in the “stark, raving mad” camp.

What has that last 1/40th of a second wrought? Extinction of species, overpopulation, nuclear contamination, global warming, soil erosion, oil spills, toxic wastes, pollution of air and water, tropical deforestation, urban congestion, alienating work, famine and on and on. In his very useful Earth and Mind, David Orr reminds us that in a typical day on planet earth:

we will lose 116 square miles of rain forest, or about an acre a second. We will lose another 72 square miles to encroaching deserts, the results of human mismanagement and overpopulation. We will lose 40 to 250 species, and no one knows whether the number is 40 or 250. Today the human population will increase by 250,000. And today we will add 2,700 tons of chlorofluorocarbons and 15 million tons of carbon dioxide to the atmosphere. Tonight the earth will be a little hotter, its waters more acidic, and the fabric of life more threadbare. By year's end the num-

bers are staggering: The total loss of rain forest will equal an area the size of the state of West Virginia; and the global population will have risen by more than 90,000,000. By the year 2000 perhaps as much as 20% of the life forms extant on the planet in the year 1900 will be extinct.³

What is the relationship between computers and information technology (hereafter CIT) and that last 1/40th of a second and beyond? CIT is connected to the industrialism and continues to alter our planet and lives. In fact, it is more than connected: it is pervasive. CIT is a commodity, a service, a tool (not neutral I will argue), a play thing, a panacea for all kinds of human ills, a job, a career, an empire (see Bill Gates), an escape, a new religion; and (given the present distribution of power and resources in the world) a major threat to the race and planet.

Technophiles argue that CIT can be used to solve social and environmental problems. However, because most CIT is harnessed to an economic system with an established and unfair pattern of distribution, it perpetuates growth and concentrates wealth in the same inherently unjust manner. The rich are getting richer, the poor poorer, and all at the expense of a rapidly degrading environment. Can CIT be used to end the present plutocracy?⁴ It depends on how the problem is perceived. If the problem is seen as merely requiring more data processing and high speed tele-communicating then the problem will worsen.

The view that more information, accessible to more people, will usher in a glorious techno-utopian future is nonsense. The current value of information is based on its use to create growth in the market place. So long as present power arrangements prevail, information for growth, profit, and control will be the primary use of CIT. Information generation, processing, and communicating to ameliorate human and environmental problems will continue to be a minor priority. Put bluntly, if the age of information activity can turn a profit for the corporate elite, as Nike says: "Do It." If it also serves

some human and environmental needs, well, that's a fringe benefit.

Our economic system demands that we consume what we produce so as to stimulate further production and thus maintain the strength of the system. The system, however, does not require the health of its component parts to maintain its power.... The endless cycle of the production and consumption of information and services generates less and less meaning ... because it reduces the possibility of autonomous action with the system. Alienation is the result.⁵

The logic and imperatives of the present economic system preclude solutions to basic problems of social justice and equality. It cannot disrupt the relationship of the few renting the labor and talent of the many by democratizing the work place hierarchy. That solution from the standpoint of the many would be seen as a "problem" by the 1% at the top who rent labor and talent in order to perpetuate their ownership of more wealth than the 90% below them. Will the increased use of CIT and the present obsession with computer literacy in our schools lead to democratic solutions, as in the work place example above?

More likely, CIT will be used to further marginalize and exploit most of the world's workers. I'm looking at a typical "computers solve our problems" ad in the April 1995, Technological Horizons in Education Journal. The lead reads: "That information will take five months to process???" (We don't know if the information is related to cutting tropical forest, planning a new mall or sales campaigns for carcinogenic products). A worried executive is pictured pondering the processing of 8,300 surveys. The options: 5 months executive time, 4 or 5 temps at \$8 an hour to reduce the project to a month (\$6,500 plus!) or an NCS computer — one person and less than a day's work. Not included in the upbeat ad is a picture of 5 temps on welfare, if the computer option is taken. Similar ads "grace" the pages of all the general audience education periodicals—The Instructor,

Teaching K-8 Magazine, Computer World, American Educator, New York Times, Educational Computer Magazine, On Campus (AFT), etc. The problems and possibilities paraded endlessly in these sources center on nuts and bolts school management and cliché saturated, accomplish-everything-with-learning technology testimonials. Rarely, if ever, can one find in these sources a critical, reflective piece on technology affecting culture that isn't celebrated as progress.

Always missing, for example, is the following critical analysis.

It is simply not prudent to count on technological rescue to solve America's job problem, much less the global problem of which it is an inextricable part. The jobs crisis raises the most fundamental question of human existence: What are we doing here? The global economic system prizes the efficient production of goods more than the dignity of human beings—The surplus of gifted, undervalued, and unwanted human beings is the Achilles heel of this emerging global system.⁶

The mindless (except for market growth) momentum of the new age-of-information—propelled global order results in a reality where “every-day real wealth—breathable air, drinking water, human imagination and energy, and the health and development of children are sacrificed for mere symbols of wealth, mostly pieces of paper and bits of electronic data that tell us how rich we are.”⁷ It is the worst of trades and CIT functions to make the trade-off more persistent and more pervasive.

Technology is not just a tool set aside (separated) from all our problems. Technology with its inevitable use and misuse has given rise to both inequities, alienation, and environmental degradation. The prevalent instrumental view (now an ideology) that typifies most of the “age of information” advocates sees computers, networking, and information technology as neutral tools. This is a dangerous misleading oversimplification that denies the tremendous potential and reality of technology (all kinds) as a cultural determiner.⁸ Neil Post-

man, a professor of communication arts and sciences at N.Y.U., is forceful in castigating the “technology is neutral” myth. He states:

“To be unaware that a technology comes equipped with a program for social change, to maintain that technology is neutral, to make the assumption that technology is always a friend to culture is, at this late hour, stupidity plain and simple.”⁹

In another era, using the present “technology is neutral” logic, one might have argued that the steam engine could be used to advance human needs and ends or thwart them. True enough, but the introduction of the steam engine into the workplace and the culture beyond did much more. “Steam engine technology” and subsequent technique enhancement created the industrial era, what Toffler calls the Second Wave, and now new, vastly more complex technology is pushing us (some kicking and screaming) into the Third Wave. The techniques are not simply tools, they define newly emerging cultures and civilizations.

Seen as a way of ordering human activity, the total order of networks is anything but neutral or toollike. In its centrality to the daily activity and consciousness of...the function-serving human component, the technical order is more properly thought of as a way of life. ...the means come to undermine and reshape the ends, and the world is qualitatively altered. And what is worst, the system, once fully in operation, no longer responds to human guidance.¹⁰

Robert Merton was correct and succinct when he wrote, “The modern technological society...is a civilization committed to the quest for continually improved means to carelessly examined ends.”¹¹ Before wiring every school, campus, and home and tying all together in networks to speed down six lane, cyberspace freeways, ask the following:

1. If there is a positive relationship between the increased em-

phasis on computer technology and solving human problems, why do these problems persist or worsen? In other words, what is the evidence that the increased use of computers in the private sector and in public education has contributed to ameliorating environmental degradation, social injustice and alienation?

2. Are the problems of modernity best addressed by the further mass production and processing of data and information?
3. What is the record of social problems being solved by emphasizing information over ideas?
4. If education represents the public interest, how should we react to the reality that age-of-information technology overwhelmingly serves private and corporate interests while public needs, both human and environmental, go unattended? (A case in point — the present human services crisis.)

Despite grandiose claims to the contrary, information technology is overwhelmingly used to increase and reinforce inequalities through the normal functioning of the market (now more technologically enhanced than ever). Most of these high-tech endeavors have an overall degrading effect on the environment. Theodore Roszak has concluded, “Computers, even when we reach the point of having one on every desk for every student, will provide no cure for ills that are social and political in nature.”¹²

The increasing use of CIT should be subjected to a questioning process to determine to what extent a positive relationship exists between the increased emphasis on CIT and social justice. The overall claim for CIT playing a positive role is not substantiated by its past and present record of serving the common good.

There are two major “givens” of our time: a growth economy and increased technology. Human activity unfolds in these two areas as if on automatic pilot. Only a small fringe of scholars question

these givens and rarely do the media present their work for assessment. The media, schools, and political discourse are saturated and monopolized by the details of the givens that continue as major hegemonic forces.

The world proceeds as if no other possibilities exist. We must have economic growth because we must have jobs, and we must have jobs to buy back the goods and services being produced for growth. Firmly grasping the marionette strings above, the plutocrats keep it all in motion. It is motion with scant substance; activity with little meaning beyond itself.

Schools and colleges are asked: "Are we helping our graduates to meet the needs of the technological economy?" Whose technological economy? Whose needs are being met by this technology? Jobs are automated and merged out of existence, real wages decline, jobs are moved overseas, and we are asked to cooperate with those who create and profit from the crisis. Who decided that the public sector should be decimated?

Other questions must be asked: Why should we be adapting to and reproducing an economic system that is destroying the public sector? We teach our students to question the passive and nonreflective life. We champion empowerment. Yet, we remain downstream processing, digesting, and ultimately drowning in the flood of trendy reports and administrative minutiae while racism, sexism, injustice and ecocide persist. The times require much more than house-keeping and bean-counting.

What to make of the futurologist's highly publicized parade of learning technologies marching our way? A failure to recognize the reality of technological determinism and its accompanying social inequalities will insure an uncritical instrumental role for education in the Twenty-First Century. More energy, more time, more resources, more funds, and more institutional support will continue to be committed to CIT committees. The issues raised by Ellul, Mumford, Roszak, and others will be ignored. Their questions — crucial in the

long term — unfortunately can't be “committee-fied.” The committee on the “Impact of the Steam Engine” was never formed. The “Impact of the CIT Culture” committee doesn't exist. Teachers working independently may think, write, lecture and teach about “it,” but “it” has no home in terms of education committee members working on “it.” No series of teleconferences or even low-tech exchange networks are working on “it.” In short, while the means-drenched-technology-technique-information-highway concerns are on the academic agenda, the “where are we going and what are we doing to each other and our earth nest” is not!

One simple suggestion. For every distance learning, cyberspace, super-info highway, satellite uplink and downlink, interactive software, Image-Mail, Virtual Reality, Artificial Intelligence, Business Via Technet, Parentlink, BITNET, Classroom 2000, Accounting Information Systems committee formed, a human condition committee is instituted. We will have committees on poverty and technology, the environment and technology, violence — individual and state sponsored — and technology, social justice and technology, sharing power and wealth and technology, and alienation and technology. Don't be surprised if out of those committees there emerges the committee for Beyond Technology.

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ENDNOTES

1. This paper was read at the American Educational Studies Association Annual Meeting November 4, 1995.
2. From a 1992 HBO Special, “Earth and the American Dream” HBO Consumer Affairs, 1100 Avenue of the Americas, N.Y., N.Y. 10036.
3. David W. Orr, Earth in Mind: On Education, Environment, and the Human Prospect. (Washington D.C. and Covelo, California: Island Press, 1994), 7. A valuable summary of the ecology crisis is John Bellamy Foster's The Vulnerable Planet: A Short Economic History of the Environment (New York: Monthly Review Press, 1994).
4. No, Virginia, there is no democracy; there is only a plutocracy. For

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validation of that plutocracy see Edward N. Wolff's Top Heavy: A Study of the Increasing Inequality of Wealth in America (New York: The Twentieth Century Fund Press, 1995). For how the plutocracy is made acceptable to the people, see Edward S. Herman and Noam Chomsky's Manufacturing Consent: The Political Economy of the Mass Media (New York: Pantheon Books, 1988).

5. Kathleen Woodward, ed., The Myths of Information; Technology and Post Industrial Culture (Madison, WI: Coda Press, 1980), from the Introduction p. xix.
6. Richard J. Barnet and John Cavanagh, Global Dreams: Imperial Corporations and the New World Order (New York: Simon and Schuster, 1994), 426, 425.
7. Ibid, 428.
8. There is a body of scholarship (see Ellul, D. Sloan, Mumford, Roszak, Sale, D. Noble, Lasch, Postman, Mander, L. Winner, Weizenbaum, etc.) addressing the modern phenomenon of autonomous technology and the technological imperative that takes the position that technology tends "to develop in its own momentum and requirements irrespective of the needs and purposes of society..." Douglas Sloan, Insight Imagination: The Emancipation of Thought and the Modern World (Westport, CT: Greenwood Press, 1983), 28.
9. Neil Postman, in telephone conversation on 10/25/95.
10. Langdon Winner, Autonomous Technology (Cambridge, MA: MIT Press, 1977)
11. Jacques Ellul, The Technological Society (New York: Vintage Books, 1964) from Robert K. Merton "Forward," vi.
12. Theodore Roszak, The Cult of Information (New York: Pantheon Books, 1986), 219.