Wisconsin Dialogue
(11) 1991

The Information Evolution

by Steve Jones

John Naisbitt and Patricia Aburdene were plugging their new book "Megatrends 2000" on the Today show. To their credit, according to Deborah Norville, they identified in their first book Megatrends that in the 1980s there would be a "communications revolution" and we would become an "information society."

Aside from the unquestioning way we accept the glaring predictability of their prediction (it is more expected than prophetic), it is remarkable that we accept the terms "communication revolution" and "information society." There is an unspecific meaning that we ascribe to these phrases that seems akin to belief in the philosopher's stone. Rarely does one ask, "What is a communications revolution?" or "What is an information society?" I doubt either could be precisely defined. But I think we would do well to try to understand why these phrases play a significant (but nonetheless vague) part in our consciousness and in our society.

There is a tendency, in America particularly and in the West generally, to overvalue the role of technology in human development. There is thus a profusion of prophetic literature (of which *Megatrends* is but one example) that sees in every technical advance a revolution, especially in the communications field. There are not only the continual predictions of radical improvements in the speed and economy of communication but visionary forecasts of a new age of peace, plenty, and democracy. The opposite to this literature is the reaction that sees technology as demonic and foretelling of impending disaster.

The everyday truth, I am certain, is somewhere in between these extremes. Regardless, there is a problem analyzing the very idea of a communications revolution. Usually the phrase works as propaganda or as an advertising slogan. But how does one know when a communications revolution takes place? If we are to follow the usage of the term "revolution" in politics, a communications revolution would occur when a central principle of communications is changed. But what are those principles?

I believe, from close study of the work of Harold Innis, Marshall McLuhan, and James Carey,[1] that there are three such principles. This belief is based on the idea that the technology of mass communication are media, that is, they mediate in the sense that they both stand between and transform. There are then two principles that they mediate: space and time (the third principle is, ultimately, social relations, as they are transformed by mediation of space and time). I should note from the outset that to engage in such a division as I have is of course artificial and difficult to maintain as each principle pervades the others.

The nature of communications technology is related to the physical dimensions of communication: the shifting relationship between long-distance and short-distance communication. Such physical dimensions are related to patterns of control, of intellectual, political, or cultural domination, to the growth, storage, and control of knowledge and culture.

Allow me again to make a division. We can from history discern three general forms of communication: oral, written (or print), and electronic communication rely on the externalization of memory, and are linked to the rise of markets, industrialization, mass production, and the development of modern institutions. One need only look at the break printing created with the medieval past's hand copying of manuscripts to understand the power of mass production.

What is the relation of all this to space? It is with the invention of the technology of printing that we find the first formulations of the relationship between speech and print, enshrined in the First Amendment. Why there? Because the American political tradition was created during a time of tension between two forms of communication; a strong oral tradition, exemplified by the New England Town Meeting, and a growing newspaper and pamphlet audience. And now we can glimpse the correlation to space: both of these forms constitute a public space, an area wherein people gather, converse, live out their everyday lives. The former is a physical space, the latter, though, is more difficult to imagine, but it linked to the notion of public opinion, and the ideas of audience and consumption. It is like the "masses," something measurable, something that exists seemingly everywhere, that we are all part of, but cannot put our finger on, or care to admit membership in.

Newspapers and pamphlets in colonial times were still short-distance forms, passed hand-to-hand, but ultimately, with the growth of the postal system, printed matter became long-distance communication. The railroad extended this pre-Civil War communication system, and it is no coincidence that major highways followed rail routes, and electronic communication in the form of the telegraph and telephone followed the rail routes and major highways. Our communication systems are intimately tied to our transportation systems, to the means by which we colonize space.

But let me turn to a more intimate example by way of a passage in Richard Sennett's *The Fall of Public Man*.

> Electronic communication is one means by which the very idea of public life has been put to an end. The media have vastly increased the store of knowledge social groups have about each other, but have rendered actual contact unnecessary. The radio, and more especially the TV, are also intimate devices; mostly you watch them at home. TVs in bars, to be sure, are backgrounds, and people watching them together in bars are likely to talk over what they see, but the more normal experience of watching TV, and especially of paying attention to it, is that you do it by yourself or with your family. Experience of diversity and experience in a region of society at a distance from the intimate circle, the media contravene both these principles of publicness.[2]

In other words, the space within which we conduct our lives, public as well as private, have shifted. The public becomes private as we consume mediated information, and the private becomes as we consume mediated information, and the private becomes public as media fill the gap created by a vacant public forum within which conversion can take place. How can media fulfill the need for intimate contact? By concentrating on personality.

To put it in visual terms, electronic communication has altered our sensory and culturally defined ideas about space. Computer graphics, everyday images on MTV or during sports programming (a CBS logo turning into a basketball turning into Brent Musberger's head) play with our notions of space as Lewis Carroll played with the English language. Our understanding of **where** somewhere **is** comes to be achieved by learning the codes and conventions of audiovisual production. Vivian Sobchack expressed this idea well:

> If the digital "bit" has fragmented our experience and representation of space, then the character of electronic dispersal has dislocated our experience and sense of "place." We are culturally producing and electronically disseminating a new world geography that politically and economically defies traditional notions of spatial "locations"... Our new electronic technology has also spatially dispersed capital while consolidating and expanding its power to an "everywhere" that seems like "nowhere."[3]

Remember the movie "Tron," in which a person is transported into a video game world? Have you ever seen a child play a video game? Does the world they are playing in appear any less real to them than the outside world? And how much more real is the outside world that is mediated to us via the news, sports, films, game shows, and so on?

The most significant and starting evidence of a change in our perception and conception of space is found in cyberpunk writing, a genre of science fiction whose acknowledged master is William Gibson. In *Neuromancer*, Gibson's first novel, he describes cyberspace, a data grid, an information matrix (the "open architecture' of the Apple MacIntosh gone berserk), accessed via (elec)trodes "jacked into" the brain. Gibson explains it best:

> "The matrix has its roots in primitive arcade games," said the voice-over, "in early graphics programs and military experimentation with cranial jacks." On the Sony, a two-dimensional space war faded behind a forest

> of mathematically generated ferns, demonstrating the spacial possibilities of logarithmic spirals; cold blue military footage burned through, lab animals wired into test systems, helmets feeding into fire control circuits of tanks and war planes. "Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts... A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data."[4]

Cyberspace is a virtual space of information, an area through which the mind, by means of a computer interface, has immediate access to a global information network. Databanks dot the landscape, and the three-dimensional information matrix is the infrastructure of the zaibatsus, corporate, government, and military information users. As one of Gibson's characters says, "The blood of a zaibatsu is information, not people. The structure is independent of the individual lives that comprise it."[5] The movements of information is the reaison d'etra of multinational information producers and consumers.

Let me end here, unfinished as this thread may be, by noting what I believe is the revolutionary change in our consciousness of space that new communication technology has wrought. We project our reality almost as we project our images, our metaphors. Our experience is that of the screen, and of the remote control, of selection from a seemingly limitless (but preselected and determined) array of choices. I am reminded of a line from a Beatles' song: "Show me that I'm everywhere/but get me home for tea." We have moved, I believe, from a social space within which signs took shape, metamorphosed, disappeared and reappeared, to a virtual space of signs, of cyberspace and the hyperreal. Recent efforts at MIT's Media Lab and VPL Technologies in Silicon Valley have reportedly succeeded in creating a bodysuit and eyewear that, when connected to a computer, envelope the wearer within a computer-generated landscape.

Everyday use of such technology is, at least, several years away. But I believe we have simpler evidence of a change in our thinking about space. I know of many people, myself included, who often feel more comfortable viewing the outside world on the screen of our car's windshield.

TIME

The element that has spurred the development of cars and transportation has also spurred innovation in communications technology. That element is speed. Sobchack's "'everywhere' that seems like 'nowhere' becomes, with only minor modification, an everywhere that seems like now/here, and we have a new, deeper meaning for the second half of the lyric from the Beatles' song — "get me home for tea." When space is no longer an issue, when it can be traversed almost instantaneously (as is the case with satellite communications), what becomes important is the speed with which information can flow.

We can now examine the term "information society." That western culture is obsessed with (and perhaps addicted to) information is not surprising or revelatory. Even our games privilege those who are most in the know, and "Trivial Pursuit" is not a trivial matter for many people. The popularity of *The Book of Lists, Famous First Facts,* and television quiz shows like *Jeopardy* (and its spinoffs) points to a preoccupation with information.

The source of information for most people is the mass media. As James Chesebro writes:

> During the last thirty years, the electronic media have become the focal point of the average American's time, energy, and attention. These media experiences dominate the...information systems...of the average American.[6]

Chesebro argues that, ultimately, the attention to mass mediated information generates and reinforces "selective worldviews or perspectives." His suggestion, "that the electronic media now function as a social reality which provides information" every bit as real or material as non-electronically mediated information can be argued against only by those who do not believe a thing they see on television. I have yet to meet any such person.

The consumption of information via the mass media is an ideological practice within the realm of symbolic activity. What has been called the "social construction of reality" is precisely what information gathering is to many people — a means of understanding the world, with the difference that electronic media permit (and necessitate) that construction to be private.

I believe that the present pervasive search for information may be a deliberate ransacking of what seems like present chaos for future meaning. As one former magazine editor said of her attention to the news and weather, "I like to find out what's **going to happen** where I live." The idea that information gained in the present will lead to knowledge of the future permeates the discourse among information seekers. The crowd of books, magazines, and newsletters with the words "forecast" or "trend" in their title attests to the allure of such prophesying. And there are those who exclusively watch C-SPAN or the Weather Channel to find out the news before it happens. It seems there is a rush to be in the future, to use it now — or, possibly, to turn it into the past. The past, as I will show in a moment, is changeable. In any case, the future does not surprise us; actually, it becomes unexciting. The things that are familiar to us, that we are comfortable with, are in the future as well. Honda car ads end with the phrase "What will be" and offer no other verbal messages. As communications scholar Julian Halliday has noted, it is as if we are trying to colonize the future.[7] Perhaps the greatest example of this colonization of the future are the "Back to the Future" movies. Even their title suggests that we've **been** to the future, we've come back, and we're going yet again.

In an age of rapid change, when the present seems always to be in flux, there is also something reassuring about simply knowing something about the future. Common sense tells us that short-term forecasts are more accurate than long-term ones, and our forecasts of the future bridge incremen-

tally smaller twenty minutes into the future). Such information, which purports to give us knowledge of the future, closes (at least emotionally) what is essentially a future of open and unpredictable possibilities.

We are, perhaps, an information society because information technology, which is preeminently communication technology, has come to color our values. If something is boring, doesn't have a lot of information, it is a waste of time. Why play tic-tac-toe if you can play global thermonuclear war? The measure of success is no longer related to who you are, who you know, or what you can do; it is a matter of what you know and how fast you are.

SOCIAL RELATIONS

The changes in social relations wrought by the already mentioned changes in our consciousness of space and time are not hard to perceive. I believe one can easily survey these changes by looking at the past year's events in China, Rumania, East Germany, and so on. Barriers have been broken, ideologies turned on their head, partially because a global economy run by multinational corporations must emphasize information flow and speed. Eastern european countries weren't overrun by zealous democratic reformers. They were overrun by information, by people who understood images of what other places are like, confronted their governments with this information, and were able to transmit information about their own country unimpeded. China shut down media coverage of the Tienenman massacre for this reason. It it ironic that Romanian TV continually aired the execution of Ceaucescu, because one of the key problems there was that the speed of reform was slower than the public would have liked. Of course it was — writing a script about the good life, shooting, editing, and airing it is much quicker than undertaking any such project in reality.

To a large extent the world events that have transpired have been the outcome of media use by individuals. Fax machines, copiers, telephones, car phones, modem communications, and video camcorders have played a significant role in China, Romania, Panama, East Germany, the Baltic states, and so on. Not only do they provide a glimpse into the innermost regions of revolution for outsiders, they also mediate the exchanges which lead to or maintain chance in the social order of those countries.

Marshall McLuhan, in a letter to the editor of a business magazine, foresaw the tendency of media to individuate. He believed that consumers, who are increasingly brought into production roles by way of market research (it is consumers who are consulted before a product begins its final production run), would ultimately desire control and seek to be producers.[8] The elements of control that the electronic age has brought forward, the TV, CD and VCR remotes, VCRs with editing capability, home audio recording, personal computers and desktop publishing, maybe even "America's Funniest Home Videos," point to a society growing ever-productive, whose products are ever-individualized, but nonetheless standardized since technology is designed in anticipation of its effects.

Yet the ease with which we manipulate space and time in our communications pushes at the limits of such anticipation. Cyberpunk, as it has come to pervade modern art and music, is the example. The origin of cyberpunk via cybernetics is obvious — Norbert Weiner's theories of systems, control, and communication brought over to science fiction wholesale.[9] The combination of telecommunications and computing, telematics, figures prominently in the work of those who have followed Weiner[10] and is the antecedent of cyberspace. The fusion of "punk" with cybernetics is the twist that gives cyberpunk its edge. It inserts an oppositional framework into a technological structure, a framework owned and operated by the computer hacker, the technologically hip but socially outcast. Cyberpunks are not the traditional armed-and-ready James T. Kirk-style West Point graduates. Instead they are typically young, in their teens or twenties (for who best understands the latest technology?), streetwise and without loyalties (that is, *ideologies*).

Cyberpunks operate in a world where nationalism, of any kind, does not exist. Mathias Rust, the West German youth who piloted a plane to Russia and landed it in Moscow's Red Square, is a cyberpunk — he mastered a technology and used it for his own pleasure, not for the CIA, KGB, or any political movement (incidentally, the prefix *cyber* comes from the Greek, meaning "to pilot"). Indeed, there is no need for ideology in an economy structured and driven by information. It is not surprising that a multinational information industry must exclude nationalism. The cyberpunk world is one with only information at its center.

Nationalism recedes seemingly in proportion to the need (or potential) for standardization. Examples are numerous in any software-based industry. For instance, the addition of MIDI (Musical Instrument Digital Interface) codes to compact discs is perceived by Warner Communications, its developer, to be so important that it is allowing other manufacturers to use its process. In another case, much of the reason for the cassette's popularity was due to its standard format. Philips Corporation freely gave the specifications to any manufacturer, provided that the specs were rigidly adhered to. Digital technology of most any sort essentially permits, practically requires and ensures standardization because of its use of binary code.

From a cyberpunk perspective, the revolutions in China, Romania, even the Baltic states, are not a surprise. Yet it would seem the latter are a nationalist expression. Still, a cyberpunk would argue, they are less an expression of nationalism and more a reaction against restricted information flow. As author Rudy Rucker stated in an interview, "What matters, nowadays, is to break all barriers that might come up between things and let information flow through them."[11]

Nationalism is a barrier to information flow that is overcome via the economic and social structures of the information industry. We are becoming a society that is getting *used to knowing what* is going on, or at least used to thinking we know what is going on. The implications for government go beyond issues of secrecy and privacy. They strike at the very heart

of what it means to govern. Franco Ferraroti identified the connection between information and power:

> In contemporary terms, information means power. If power involves control, and if it is impossible to control what is not known, then information is the necessary, if not exclusive condition, which lies beneath every exercise of power.[12]

I am reminded of a passage from Milan Kundera's "The Book of Laughter and Forgetting." He wrote, "The struggle of man against power is the struggle of memory against forgetting."[13] Each of these nations is, in some way, struggling to regain their memory. Kundera continues:

> People are always shouting they want to create a better future. It's not true. The future is an apathetic void of no interest to anyone. The past is full of life, eager to irritate us, provoke and insult us, tempt us to destroy or repaint it. The only reason people want to be masters of the future is to change the past. They are fighting for access to the laboratories where photographs are retouched and biographies and histories rewritten.[14]

Individuals are learning the language, mediated via communications technology, with which to rewrite the past, and we are slowly, as a society, beginning to become conversant in this milieu of malleability. A striking example of our penchant for editing is a recent Michelob "Bring on the Night" TV commercial in which a fellow is editing a film of a woman and man in a bar. The pair begin to leave the bar whereupon the editor stops the film, cuts in a scene of the woman turning down the man's advance, and the woman leaves the bar alone. Satisfied with his work, the editor takes a drink from his bottle of Michelob, glances out the window of his loft, and sees the woman (from the film) leaving a bar, looking up at him. The point is not that art imitates life, life imitates art, and so on, but that *life itself can be edited*.

The parallels we draw between machines and living things strongly color our understanding of the world. When hydraulics was at the center of physics, the human circulation system was thought to be the center life. When physics was occupied with thermodynamics, energy balance was thought to be the key to understanding life. Now information is central — life is thought of as a genetic code, and like a machine code is available for editing.

We used to do such manipulation collaboratively, in town meetings, in pubs and bars, at debates. We used to work together, as a public, to transform our understanding of ourselves, of our history and culture. Now we increasingly perform such operations as individuals, each at the controls of our own production and consumption media, creating and re-creating do-it-yourself mediated realities. I have no quarrel with those who believe there is no kind of reality other than a mediated one. I believe, though, that we are moving from a socially constructed reality to individually constructed ones that are without a necessary basis in social interaction.

There exist a myriad of issues, beyond the scope of this article, for examination: What does communication technology do to the ways which we externalize our memory (and therefore our culture)? What does it mean that memory is malleable? What about privacy issues and electronic surveillance? And, I think most importantly, what is the role of the individual in everyday life as it intersects with this technology?

I hope I have illustrated some of the ways we can understand the deeper meanings behind phrases such as "communications revolution" and "information society". We are in the middle of rapid technological change, and it is difficult to define precisely such change until we can gain a perspective from without it. I also hope it is clear that these terms need to be used with precision and demystified, for they serve little purpose other than to mythologize a history that we are in the process of living.

NOTES

[1] A good introduction to both Innis and McLuhan can be found in James Carey *Communication as Culture: Essays on Media and Society* (Boston: Unwin Hyman, Inc., 1989). Much of McLuhan's work is explicated in a recently published collection of his correspondence: Matie Molinaro, Corinne McLuhan and William Toye (Eds.), *Letters of Marshall McLuhan* (New York: Oxford University Press, 1987). McLuhan's seminal texts are: Marshall McLuhan, *The Gutenberg Galaxy* (Toronto: University of Toronto Press, 1962) and Marshall McLuhan, *Understanding Media: The extensions of Man* (New York: McGraw-Hill, 1964). The work of Harold Innis is best represented in Harold Innis, *Empire and Communication* (Oxford: Oxford University Press, 1950) and Harold Innis, *The Bias of Communication* (Toronto: University of Toronto Press, 1951).

[2] Richard Sennett, *The Fall of Public Man* (New York: Vintage Books, 1978), 282.

[3] Vivian Sobchack, *Screening Space* (New York: Ungar, 1986), 232-233.

[4] William Gibson, *Neuromancer* (New York: Ace Books, 1984), 51.

[5] Ibid., 147.

[6] James Chesebro, "*The Media Reality*" Epistemological Functions of Media in Cultural Systems" *Critical Studies in Mass Communication* 1 (1984): 111.

[7] Julian Halliday, "*Co-Opting the Future: A Post-Modern Aesthetic of our Time*", unpublished paper, 1987. Halliday's analysis of media tests, his treatment of "Back to the Future" in particular, is excellent.

[8] Matie Molinaro, Corinne McLuhan and William Toye (Eds.), *Letters of Marshall McLuhan* (New York: Oxford University Press, 1987), 252-255.

[9] Norbert Weiner, *Cybernetics* (New York: John Wiley and Sons, 1948).

[10] The term telematics was first introduced by Simon Bora and Alain Minc in *The Computerization of Society* (Cambridge, MA: MIT Press, 1980).

[11] Daniel Riche, "The Cyberpunks Reinvent Science Fiction, *Heavy Metal*, Winter, 1987, 9.

[12] Franco Ferraroti, *The End of Conversation* (Westport, CT: Greenwood Press, 1988, 156.

[13] Milan Kundera, *The Book of Laughter and Forgetting* (New York: Penguin Books, 1981), 3.

[14] *Ibid.*, 22.

ONE TWO THREE FOUR

ISSN: 0889-0536

Editors:
Kevin Barrett
Brenda Johnson-Grau
Glenn Johnson-Grau

Production editor:
Tom Pasley

Staff historian:
Gary Stewart

Staff bibliographer:
Lisa Sousa

Data conversion:
David Fenton

Erratum from Number 4, Winter 1987: The cartoon on page 42 is by Lowry, not Benyon. We are very, very sorry to have made this mistake.

Erratum from Number 6, Summer 1988: The article "Walkman as Urban Strategy" was originally published in *Pop and Folk Music: Stock-taking of New Trends, International Music Education, IASME Yearbook X* (1983), Jack Dobbs (ed.), pp. 129–133 and was reprinted with the permission of the author.

Contents

Number 7, Winter 1989