Key Concepts in Critical Cultural Studies

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UNIVERSITY OF ILLINOIS PRESS

URBANA, CHICAGO, AND SPRINGFIELD

Manufactured in the United States of America
1 2 3 4 5 C P 5 4 3 2 1
♾ This book is printed on acid-free paper.

Library of Congress
Cataloging-in-Publication Data
Key concepts in critical cultural studies /
edited by Linda Steiner and Clifford Christians.
p. cm. — (History of communication)
Includes bibliographical references and index.
ISBN 978-0-252-03506-7 (cloth : alk. paper)
ISBN 978-0-252-07695-4 (pbk. : alk. apper)
1. Culture—Study and teaching.
2. Communication and culture.
I. Steiner, Linda. II. Christians, Clifford G.
GN357.K49 2009
306.071—dc22 2009029973

Technology

THE DIGITAL SUBLIMATION OF THE ELECTRICAL SUBLIME

STEVEN JONES

Technology is a lot like the weather. It influences us in myriad untold ways; directly or indirectly, it affects everything from our behavior to our physical health and our mental outlook. Like the weather, technology is often in the news. And we try our best to forecast and predict it, but its unpredictability continues to foil us. We know the sources of weather; that is, we know in scientific terms what causes it. Similarly, we know who creates a particular technology, but we know little about the way it works or its likely operation, and we know it best only in the present, as it is happening to us, and in the past, in the stories we tell about its impact on us at some time (usually long) ago.[1] And we talk a lot about both, a similarity more pronounced recently. An increasing number of people now talk about technology at least as much as, if not more than, they talk about the weather.

Today, technology is

* almost exclusively electronic (even primarily mechanical devices, such as automobiles, now rely on electronics and use electricity);

* almost entirely computer driven (chips are, it seems, in everything; some municipalities in the United States are even debating requiring identity chips be placed in pets);
* highly miniature, and even nanoscale, with such technologies already redefining how we imagine "small";
* largely silent, so that we do not hear it working but for the occasional noise of a fan or an alarm;
* converging, at least insofar as a single device can do multiple things;
* and internally information oriented (machines are always providing information, telling us something, whether we wish to know it or not, as with automobile alerts saying, "The door is ajar").

Of course, technology differs from the weather above all in that the latter is natural, found in nature, and the former is not. Yet technology—particularly modern, digital, networked communication technology—is coming to seem more natural. This is partly because it is being woven into all manner of everyday routines and partly because it is increasingly invisible and silent. Only fifty years ago technology was predominately mechanical, large and therefore visible, loud, and built for a single purpose. There was no missing it, and at least early on, there were no attempts to hide it. Only in the late nineteenth and early twentieth centuries can one find efforts to incorporate communication technology into the landscape of everyday life. The effort was led by phonograph makers, who sought to highlight the record player's role "as edifying musical furniture, an unobtrusive presence in the idealized environment of family life" (Barnett 1996, 301; see also Kruse 1993; for a more general discussion of technology, domestic life, and the home, see Silverstone and Hirsch 1992). Not surprisingly, the technology that carried the human voice was among the very first modern technologies to find a place in the home.

Yet while loud and visible, technology prior to digitalization told little about itself and its workings. The information given to its users was at best obscure. Users needed to troubleshoot should something go wrong; there was little if any feedback, such as error codes or logs. One needed to dig around underneath the hood of an automobile for clues about a problem, or listen for sounds from the engine, or study the color of exhaust from the tailpipe. Even in the case of early computers one had to decipher their inner working by looking at a series of lights on a panel or examining software code and other sorts of readouts.[2] Now, more types of technology allow people to communicate with one another. There is also more communication between people and technology. And there is more communication between devices of which users may often be unaware.

Technology, Culture, and Scholarship

Despite all these changes in technology that emerged in the past 150 or so years, we have progressed very little in understanding technology as an element of culture. Perhaps that is because technology has come to seem increasingly natural. Perhaps because digital technologies have, since the 1980s, seemed less revolutionary and more evolutionary, they draw less of our attention. In cultural studies the literature regarding technology is wide ranging; a tour through it can take readers to many interesting places. Nonetheless, insightful understanding of the history of technology and culture through the lens of social theory remains elusive. Much of what has been written about technology and culture either examines a particular invention and its "impact" on culture or ventures into abstract, sometimes speculative, theorizing about technology's "influence" on culture. Even when the symbiotic relationship between technology and culture is acknowledged, the acknowledgment is typically in service of determinism—though of the cultural, rather than technological, sort: culture has caused a particular technology to be invented or used in a particular way. Engineering is assumed to follow the lead of culture or at least be secondary to it. Examinations of the material conditions under which technologies are invented and the material changes brought about by technology fare much better, for they are more easily focused, and empirical evidence is readily available to show connections between technology and socio-material conditions. (As I discuss later, however, that too can cause problems.)

Most scholarship focuses on specific media technologies (often at a micro level and with much historical detail), but what we need is intertechnological work, that is, studies that might analyze and help explain the relationships among technologies of communication and culture. Little research focuses on technology transitions, the moments when we first encounter old and new media together in everyday life. Old and new media rarely clash directly. Rather, they coexist, often for quite a long time. They adapt (the new often adapting to the old—consider the sudden popularity of PCs as TVs or "media centers" or of YouTube and the hype surrounding on-line video), and culture adapts alongside and with them. The most interesting work in the literature of technology and culture analyzes transitions and adaptations among technologies and between technology and culture to give us an understanding of particular people and moments (see, e.g., Hoggart 1961; Marvin 1988; Sennett 1992).

The earliest substantive and satisfying writing about technology and culture is by Lewis Mumford. In *Technics and Civilization* (1934) Mumford described soci-

ety as technical already well before machines were developed. Although scholars prior to and during Mumford's time had focused on the diffusion of technology in society (in industry, for instance, or in the home), Mumford's contribution was to show how technology suffused our thinking. He used the term *technics* to denote not only the use of a machine but also a reorientation of wishes, habits, ideas, and goals brought about by an imagination that includes machines in its universe. "Behind all the great material inventions of the last century and a half," Mumford wrote, there "was not merely a long internal development of technics: there was also a change of mind" (3). The very presence of the machine as an imagined object enabled its re-presentation in thought and culture.

Technics is most interesting in the realm of everyday life, where it illuminates the underpinnings of social and cultural change in the late nineteenth and early twentieth centuries. Consider, for example, a chapter from the first volume of Robert Caro's (1982) biography of Lyndon Johnson titled "The Sad Irons." To explain why Johnson sought construction of dams on Texas's Colorado River, Caro provided a lucid and compelling tale of life in the Texas Hill Country, where Johnson grew up, a tale that includes the trials of being without electricity in a country that had rapidly become electrified. We, living in places that have enjoyed ubiquitous electricity for as long as we can remember, may find some of Johnson's hardships quaint (e.g., the use of iceboxes that used ice and not electric refrigeration . . . how *antique*). Others may make us pause as we consider the consequences. For example, iceboxes were rare because the cost of ice itself was prohibitive, and so inhabitants relied on canning to preserve fruits and vegetables, but canning required both constant work as each fruit or vegetable ripened and heat from stoves that had to be stoked with wood, which was often carried great distances, and that caused a great deal of smoke and too much heat during the late-summer canning season. Perhaps most surprising and interesting for communication scholars is the single sentence that Caro (1982, 512) sets on its own toward the end of the chapter: "Even reading was hard." Consider what it meant to have only candles or kerosene lamps available for illumination and how that affected children's education.[3] One of Caro's interview subjects showed what technics means to the imagination: "'Living was just drudgery then,' says Carroll Smith of Blanco. 'Living—just *living*—was a problem. No lights. No plumbing. Nothing. Just living on the edge of starvation. That was farm life for us. God, city people think there was something fine about it. If they only knew'" (513). The crux of technics lies in Smith's last few words: "If they only knew." The ability to imagine alternatives, possibilities, and perhaps most important, consequences is what is most at stake in Mumford's critique of technology and technological thinking. It is also what is at stake in

the best scholarly writing about technology. It does not merely *tell* us what we do not know. Rather, it *shows* us new perspectives from which to understand how and why what we know and do not know matters.

Not until the 1960s did explorations of technology and technics in the realm of the mundane began in earnest in media studies. Scholars such as Marshall McLuhan (1962), Harold Innis (1964, 1986), Elizabeth Eisenstein (1979), and Walter Ong (2002) explored media in transition with a particular focus on consequences of technics for the senses and sensibilities. Their work opened up interesting areas of questioning in an era during which modern electronic media of communication emerged as elements of mass culture.

The interest in technology and culture was, of course, not absent outside North America. In particular, in Europe the combination of Marxism and British cultural studies resulted in important work on the technologizing of culture and thinking. One of the first and most interesting books in British cultural studies is Richard Hoggart's *Uses of Literacy* (1961); although most would consider this to give technology at most only peripheral consideration, Hoggart's insights apply to the present, when the Internet and other new media provide seemingly endless choices and freedoms. Technology may provide new forms of expression, community, and assembly, Hoggart (1961, 282) noted, but his concern was "that freedom . . . be kept as in any sense a meaningful thing whilst the processes of centralisation and technological development continue. This is a particularly intricate challenge because, even if substantial inner freedom were lost, the great new classless class would be unlikely to know it: its members would still regard themselves as free and be told that they were free."

Raymond Williams's *Television: Technology and Cultural Form* (1974) is the most interesting and direct treatment of technology published in the heyday of British cultural studies, particularly in the manner Williams was able to contextualize television in society. It was here that Williams debuted the term *mobile privatization* to denote the contradictory but compelling ways that media had begun to alter not only the balance between the private and public but also the very meaning of those terms in relation to space and place. Still, scouring British cultural studies literature from the 1960s through the 1980s for commentary regarding technology clearly shows that by and large the lines drawn there are the same as those that have been drawn in most other analyses of technology: utopia versus dystopia, the liberating promise versus the oppressive potential, the (sometimes breathless) descriptions of what technology "made possible" (music, video, art, etc.) and what it "made invisible" (labor, ideology, etc.). In short, technology is overvalued in regard to most every domain of human activity, its agency made central and almost unquestioningly effective and thus deterministic.

Carey on Technology and Culture: The Detour through Ritual

The work of James W. Carey is best situated in this conversation about technology, although Harold Innis, too, contributed to Carey's writing. Carey's studies in economics provide a closer link to Innis than might be evident from Carey's essays. Innis had earned a doctorate in economics from the University of Chicago, and his early scholarly work reveals the makings of a liberal political economist. His break from classical economics toward the study of media influenced, among others, Marshall McLuhan. Nevertheless, Innis's shift toward studies of media, particularly toward analyses of the spatial and temporal biases of communication technologies, was influenced greatly by economics, particularly as he linked changes in political economy to technology and media. Indeed, his analyses are insightful and balanced precisely because Innis did not start from a position centered on technology. In his view communication is a medium in the sense of an intervening substance. It does not necessarily itself intervene; it is not necessarily an agent. To understand it as a substance one must study that which is embedded in it. That understanding of mediation was not lost on Carey and came to be a hallmark of his nuanced analyses of the history of communication technology.

Carey's doctoral dissertation blended his knowledge of economics and journalism in research on the way words are priced (Carey 1963).[4] Why did some writers earn ten cents per word while others might earn a dollar per word? How could all words in an article be priced the same? While working on his dissertation, he encountered Marshall McLuhan, who had come to the University of Illinois at Urbana-Champaign for a stint as a visiting scholar, bringing with him the seeds of his book *Understanding Media* (Carey 1998c). By then Innis, too, had shifted toward media studies. The combination of Innis, McLuhan, and his situation as a student among journalists at a time when new electronic communication media were rapidly coming to dominate newsgathering and news sharing apparently made a strong impression on Carey. It was not until 1975, however, that Carey synthesized Innis and McLuhan in his own voice, in "A Cultural Approach to Communication" (1989, 13–36).

In that essay Carey clearly and forcefully distinguished two views of communication, ritual and transmission. The latter is a "process of transmitting messages at a distance for the purpose of control. . . . Communication then is persuasion, attitude change, behavior modification, socialization through the transmission of information, influence, or conditioning." The former is "directed not toward the extension of messages in space but toward the maintenance of society in time; not the act of imparting information but the representation of shared beliefs. . . . The archetypal case under a ritual view is the sacred ceremony that draws persons together in fellowship and commonality" (Carey 1989, 6). By highlighting ritual Carey added to communication an important human dimension otherwise absent in the view of it as transmission or transportation. He made clear that messages are nothing without meaning.

In each case, ritual and transmission, Carey's terminology has religious overtones. The importance of this religious cast is particularly clear in his explanation of the role transmission plays in exploration and colonization:

> Transportation, particularly when it brought the Christian community of Europe into contact with the heathen community of the Americas, was seen as a form of communication with profoundly religious implications. This movement in space was an attempt to establish and extend the kingdom of God, to create the conditions under which godly understanding might be realized, to produce a heavenly though still terrestrial city.
>
> The moral meaning of transportation, then, was the establishment and extension of God's kingdom on earth. . . . [The telegraph] entered American discussions not as a mundane fact but as divinely inspired for the purposes of spreading the Christian message farther and faster, eclipsing time and transcending space, saving the heathen, bringing closer and making more probable the day of salvation. . . .
>
> Communication was viewed as a process and a technology that would, sometimes for religious purposes, spread, transmit, and disseminate knowledge, ideas, and information farther and faster with the goal of controlling space and people. (16–17)

This is not to say that Carey viewed transportation (or ritual, for that matter) as merely a religious metaphor. Rather, it is important to take up this thread in relation to McLuhan, who, like Carey, drew inspiration from his Catholicism. Later, Carey noted the significance of McLuhan's Catholicism:

> McLuhan's history of technology is in many ways a secularized version of the basic Christian story of Eden, the Fall, and Redemption. Technology restored the intimate connection to the Godhead sundered in the moment of rational and sinful alienation. The metaphors which lace his work are religious ones as well, drawn, in particular, from a Catholic vocabulary of ritual and sacrament. Finally, though it is not something to be demonstrated here, his understanding of the oral tradition (an understanding quite at odds with that of Innis) is deeply informed by a liturgical sense of chant and memory rather than a political sense of discussion and debate. The preliterate world for which he yearned was a liturgical world rather than a political one. (1998c)

Carey, too, frequently referred to the Catholic tradition; his work is threaded throughout with references to oral traditions and memory, particularly his "Historical Pragmatism and the Internet" (2005). Nonetheless, he emphasized politics, geography, and economics, elements he believed necessary to any serious consideration of media and technology. Carey's chagrin at McLuhan's evisceration of politics from technology was rearticulated in the aforementioned review essay, which complains, "McLuhan was peculiarly disconnected from the politics of his time and was admired by and appealed to those who reduced politics to technology or who sought technological solutions to political dilemmas" (Carey 1998c).

Imagined Presence and Communication

I was first attracted to James Carey's work in the early 1980s as a graduate student at the University of Illinois at Urbana-Champaign (UIUC). I was then (as I am now) a "nerd" as that term was used at the time.[5] As a high school student I had access to a minicomputer, and at UIUC I was fortunate to land work helping to prepare educational materials for use on the campus's PLATO (Programmed Logic for Automatic Teaching Operations) computer system. At the time I was primarily interested in becoming a rock critic and feature writer, and I was dabbling in being a musician. While the communication technology with which I worked held my attention, I found PLATO to be less interesting than the technology used to create music. What most fired my imagination then—as it still does now—was the simple idea, found in some form throughout Carey's work, that communication travels. I was particularly interested in the way music moves from one place to another, the way it can be transported, and even more in the way sonic spaces (e.g., reverberant spaces) can be created, moved, and used to immerse a listener (Jones 1992, 1993, 2002). Although most scholars and readers focus on Carey's introduction of the ritual view of communication, Carey was neither dismissive nor unaware of the value of transportation for an understanding of communication. It was the transportation *model* with which Carey took exception, the notion that communication can be *reduced* to merely the "carrying" of information from one place to another. Carey regularly reminded students in his courses that transportation routes were communication routes, news was carried by travelers, telegraph lines followed railroad tracks, and so on. Moreover, transmission is not the same as transportation. Innis made clear that transportation is best understood in a physical sense, in terms of the ability of media to move communication across space and time. Carey's interest was, therefore, in changes media bring to cultural conceptions of spatial and temporal distance and in their bias toward the spatial or temporal. Most of the scholars who address technology and culture, however, overlook the cultural aspect of the "travel" of communication except when, usually in very glib fashion, they introduce cultural imperialism (e.g., communication technology "brought" this knowledge to that culture). The literature is, typically, first and foremost a history of production or consumption (who "makes" technology or who makes or sends something with it, or who "uses" technology or receives something with it) without consideration of distribution. Transportation as a metaphor for communication has unfortunately received short shrift from cultural studies scholars interested in communication technology. (Notable exceptions include Vincent Mosco, Douglas Kellner, Janet Wasko, Andrew Calabrese, and Graham Murdock, among other scholars. Their works are oriented toward political economy of communication, and they seriously consider the nature of the movement of people and commodities in relation and in addition to the movement of information.)

We can readily conceive of ways that communication can make us feel as if we have traveled elsewhere. An interesting narrative to think about in this regard is Jerzy Kosinski's *Being There,* but we rarely consider how communication can make us think we have traveled in time. This is why the spiritual dimension in Carey's work is important and why communion matters. How near or far are we to our ancestors? Do we speak to our forebears, and do they speak to us? How near or far are we from our past? How do we commune with it? This is why McLuhan's and Carey's Catholicism is so interesting. The notion of the Catholic Communion involves making Christ present. It is this notion of presence that we must further interrogate. How do media make us and others present? This fundamental question has been addressed only in the most ham-handed ways, such as when we ask whether the virtual is as good as the real or whether computer-mediated communication can be as good as face-to-face communication.

Perhaps we can consider instead how technology makes us and others present along multiple sensory dimensions, why we place value on particular types of presence, how presence matters, how it is imagined, how it happens with and through technology, and how and why we have learned to modulate presence. I mean "presence" not in the way it is used with regard to new technologies, such as ones used for videoconferencing ("telepresence"), but rather in the sense of an "imagined presence"—quite literally, to borrow from the commercial world, as "the next best thing to being there," and yet so good that we are indeed able to imagine being there. One easy way to sense the power of imagined presence is to consider the importance of photos and recordings of loved ones who have passed away. Once the living and dead have been located, what things do those

who have survived fire, tornado, flood, earthquake, or other disasters search for? Usually they search for photo albums.

Communication technology has proven itself a means of making people present across past, present, and future. As Jeffrey Sconce in *Haunted Media* (2000) and John Durham Peters in *Speaking into the Air* (2000) each note, in different ways, the electronic medium and the spirit medium share some of their roots, which often run deep in American culture. Experience and memory, personal and collective, human and electronic—these are the substance of culture and of technology, and culture and technology can be understood as a substrate on which the past is recorded, the present unfolds, and the future is predicted.

Technology and Culture: Where Do We Go from Here?

To return to where I began: while there is no shortage of communication technology to study and understand, we still know very little about technology and culture. Perhaps technology changes too rapidly to be easily understood within the context of culture, though analyses such as Raymond Williams's *Television: Technology and Culture Form* argue against this. More likely, technology is so finely woven into the fabric of everyday life that relevant insights are hard to come by. Insights about the relationships between technology and culture are therefore harder still to discern.

Technology is dispersed throughout culture, yet it itself disperses culture, too. Moreover, scholars of communication have become accustomed to dividing the discipline by medium, as if each medium were somehow independent of other ones. We are thus more likely to study an individual technology than to consider technology as comprising those individual media. For example, the divisions (a telling term for them) in the discipline's major professional associations, the National Communication Association and the International Communication Association, are sometimes specific in their focus (e.g., interpersonal communication or mass communication). Scholars often self-identify even more specifically in terms of television, radio, print journalism, Internet, and so on. The discipline of communication has a deeply embedded medium-specific orientation that tends to direct scholars toward intratechnological studies. This orientation is evident in department curricula and job advertisements. Even scholars who research the Internet and its social impacts too often confine their work to a single Internet medium (e-mail, Web, chat, and so on). Jonathan Sterne (1998, 258) has chastised critical scholars for following other academicians in depicting the Internet as a *millennial* cultural force: "In these millennial scenarios, the cultural critic wonders at the possibilities and 'impact' of the 'new' medium: Will it revolutionize our lives or be a tool of alienation?" Why do critical scholars critique the design of technology rather than try to understand, and when appropriate intervene in, the interpretive possibilities of new media?

Neither mass nor interpersonal communication is as significant a category as it once was. Indeed, they are becoming largely insignificant. Mass communication is no longer the simultaneous or near-simultaneous experience of media content; it is the experience of technology and medium. Mass media still can and do deliver content to large audiences, but how that content is chosen, attended to, experienced, and perceived is increasingly individualized. What is "mass" about mass communication is not the message, not the content, but in fact the meaning we make when we engage with it. Carey acknowledged the importance of another definition of *mass* by emphasizing ritual, linking that term to the Catholic Mass. The Internet is a medium of mass communication not because we may all look at the same Web pages but because its users share the experience of its use—freezes, crashes, errors, and all. Moreover, much interpersonal communication takes place by way of media rather than face to face, so maintaining the notion that interpersonal communication requires physical presence is of little use. Various technologies can no longer be categorized as tools either for mass or interpersonal communication, because they can be used just as easily for one as for the other. Is e-mail a medium of mass or of interpersonal communication? Does it matter?[6]

Precious little in communication literature addresses multimedia or multitasking. Not much addresses the Internet itself as a cultural site. While the Internet's impacts on politics and the impacts of policy and regulation on the Internet have been studied, little scholarship (apart from some studies of flaming and flame wars) deals with the everyday politics of on-line communication. Who "speaks" on-line, who is allowed to speak, who is silenced, how does this speaking and silencing "work," and why does it happen? What does it mean? Convergence is another area in great need of critical analysis. If there is any evidence of the mythic concept of "convergence," it is in people's use of media and technology, and not in technology itself. But where is the research from which we could understand how use is made, sometimes simultaneously, of multiple media? Where are the theories about communication and multitasking, for example? As has been demonstrated by the hand-wringing over social-networking sites such as MySpace and Facebook, scholars studying computer-mediated communication have long known that social relationships are a significant (maybe the most significant) part of Internet use. Why do most studies of the Internet and social relationships fall back on comparisons between Internet relationships and non-Internet relationships, as if the experiences of social relationships are

easily comparable, no matter the medium, no matter other (myriad) details in peoples' lives? It is no longer (and may have never been) possible to distinguish unmediated relationships from technologically mediated ones.

* * *

To return to the metaphor of weather with which this essay began, technology had been loud and insistent. Like the fog that comes "on little cat feet" in Carl Sandburg's 1916 poem, however, it has become quieter. It is not silent. In some cases, like the thickest fog, it is most obtrusive and obscuring. Take, for instance, the mobile phone's intrusion into quiet spaces. The furor over its noisiness obscures both its blurring of public and private spaces and its transformation of conversation and silence. Likewise, our computers generate myriad noises, some of which are related to its activity and interaction with us, such as the start-up chimes and beeps that signify error or task completion, and some of which are related solely to its function, like fan or hard-drive noise. Keyboards and mouse clicks make noise. Virtually all computers now have speakers and play all manner of audio files. The sounds of our environments at work, home, and school have changed greatly, yet while we sometimes consider the "new noisiness" that accompanies these devices, we neglect to consider the noises they obscure. In many cases we forget that many people need to obscure silence. Undergraduate students used to leave the TV on in their homes or dorm rooms so they would not feel alone. Now they leave on a computer or cell phone. Either way, they fight loneliness, and they fight it with technology.

Indeed, our sense of cultural transformation, the means by which we measure such transformation, has changed as well. Once we measured it by examining content—TV shows, or music, or newspapers. Increasingly we measure cultural transformation by technological change, by the speed and memory of our computers, the number of songs on our MP3 players, the size of those and other devices, the speed of our Internet connections. You surely remember the sound of your modem making its connection, and it undoubtedly seems both as distant and as near as the myriad times you heard a popular song that you could not get out of your head. Internet-related communication technology, relying on IP and packet technology, has not only digitized content but also completed the digitization of other media of communication; all on-line communication is digital. There is no "old" medium that has not been digitized for on-line distribution. Digital media have put an end to mass communication as we knew it, but at the same time they have created new forms of mass communication, ones as full of contradictions as were old media (after all, the Internet, once a network of networks, has become the medium of media). Digital media are interactive and individual but nevertheless bind us in interesting, meaningful, and important social formations.

Notes

1. One could imagine a technology forecast somewhat like a weather forecast: Today will be partly operable, intermittently communicative with spells of isolation; we'll have a high of eighteen connections and a low of two connections. Chance of frustration: 40 percent.
2. I recall in high school being able both to use an AM transistor radio with a DEC PDP 8/e to hear a computer's registers operating and to manipulate the registers to play tones on the radio.
3. David Nye's *Electrifying America* (1992) and Wolfgang Schivelbusch's *Disenchanted Night* (1988) provide longer accounts of illumination and electrification; Jean Verdon's *Night in the Middle Ages* (2002) offers anecdotes about light, and its absence, at a much earlier time.
4. After earning an undergraduate degree in business administration, Carey went to Illinois to study advertising, but during his graduate studies he was surrounded by some of the leading scholars and practitioners of journalism.
5. At that point it was used to denote essentially the polar opposite of "cool," and it certainly did not portend a potentially lucrative future, as it did in the post-Netscape era.
6. Interesting, and again understudied, cases emerge when a person intends to send a personal message but actually replies to a large group of people, as sometimes happens on an e-mail list.