Critical Cyberculture Studies

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WITH A FOREWORD BY

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Chapter 1

The Historiography of Cyberculture

Jonathan Sterne

We are at a turning point in the analysis of so-called new communication technologies.[1] Even though we are used to thinking of them as new, these technologies are not nearly as new as they were ten, twenty, or thirty years ago. Claims for the revolutionary promise of digital technologies are dissipating as well: advertisers have moved to "digital lifestyle" campaigns that represent digital technologies as commodities to be integrated into everyday life rather than as epochal forces that will transform it. Meanwhile, scholarly treatments of so-called new media are getting more nuanced. While some conservatives and otherwise recalcitrant sorts still argue for the revolutionary power of "new" technologies, the technophilic position is at least somewhat less acceptable in serious scholarship than it was five years ago. With perseverance and good fortune, they'll become even less respected as time passes. Similarly, critical scholars are less likely to present simple critiques of technological determinism and e-topian discourse (to borrow a term from Crawford [2003]) and are more likely to expand the scope of their studies either to offer robust descriptions of digital media or to connect the remaining e-topian discourses with broader social and political currents.

So in many ways, cyberculture studies—whatever you take the field to be—has made significant strides in the past five years. It has more conferences, more journals, and more good scholarship. Ah, signs of progress![2] In other ways, however, we are still at the very beginnings of a specifically academic and critical historiography of cyberculture; we ought to step back and reflect for a moment. Some habits of historical and methodological thinking have begun to crystallize in cyberculture studies. Many of our analytical categories were developed in the 1980s and 1990s, and many of them persist into the supposedly new moment we now inhabit. In a sense,

we are mirrors of our object: as we take each step, we carry forward a history that we have not yet fully grasped, and that history in part shapes our action on the present stage. In fact, most of our scholarly histories of cyberculture in one way or another recapitulate narratives available from corporations heavily invested in the digital media economy, or stories told online by self-described "pioneers" themselves (our language still hasn't quite given up on the frontier mythos) or cheerleader journalists.

In this essay, I will challenge you, dear reader, to think more broadly and bravely about what counts in the domain of cyberculture studies. I will do so by exploring some aspects of contemporary media culture via sound. But my point is much bigger than "gee, people should talk about sound." Rather, my point is that we need to be careful in our object construction. Or, to borrow a social scientific phrase, we need to be more sensible in our "research design."

Sound might seem like an odd theme to crop up in an essay with a title as grand as "*The* Historiography of Cyberculture." We already assume that an essay bearing such a grandiose title would discuss cyberpunk authors and sci-fi flicks, hackers and phone phreaks, defense systems, university networks and home computers, MUDs and MOOs, browsers and user groups, VR helmets and wearable media, Web sites and information economies, and sites of new industry. All of these objects are legitimate objects of cyberculture study—and elsewhere I've considered many of them. But if we assume that these are the proper objects of cyberculture study *before* we read the essay, then we are also assuming that the most important parts of our historiographic work are finished—that we already know what cyberculture is and where it comes from. I aim to trouble that certainty in this short piece.

Let us start with a banal example: a story on special effects in *The Matrix Reloaded* in the May 2003 issue of *Wired* magazine. As the author explains, the production studio created its fight scenes from elaborate composites of sampled images. Rather than creating an artificial reality and filming it, the editors built motion sequences out of countless still images of actors and locations—taken from every imaginable angle. In a word, they "sampled" images and created a totally fabricated scene from them:

> The standard way of simulating the world in [computer graphics] is to build it from the inside out, by assembling forms out of polygons and applying computer-simulated textures and lighting. The ESC [a visual effects firm] team took a radically different path, loading as much of the real world as possible into the computer first, building from the outside in. This approach, known as image-based rendering, is transforming the effects industry.
>
> A similar evolution has already occurred in music. The first electronic keyboards sought to re-create a piano's acoustic properties by amassing sets of rules about the physics of keys, hammers, and strings. The end result sounded like a synthesizer. Now DJs and musicians sample and morph the recorded sounds of actual instruments.
>
> Instead of synthesizing the world, [ESC effects-guru John] Gaeta cloned it. To make the Burly Brawl, he would have to build the Matrix. (Silberman 2003)

The *Wired* writer immediately picks up on the analogy between sampling sounds and sampling images, and points out that the *Matrix*'s "Burly Brawl" fight scene was indeed "sampled." For all the academic critiques of *Wired,* I wonder how many of us scholars would have picked up on that obvious parallel as quickly as a *Wired* journalist. While visual design is very much at the center of cyberculture studies, the auditory dimension is almost always left out. One need only look at the available bibliographies. Beyond Steve Jones's work (Jones 1993 [discussed below]; Jones 2000; Jones 2002) and a few other notable mentions like Mark Dery's references to music in *Escape Velocity* (1996), Sean Cubitt's chapter on sound in *Digital Aesthetics* (1998), or a passing mention of sound synthesis in Lev Manovich's *Language of New Media* (2001), one has to leave the field entirely to find interesting writing on digital audio that is not simply commentary on MP3s and file sharing (for example, Meintjes 2003; Rothenbuhler and Peters 1997; Taylor 2001; Theberge 1997).[3] In other words, the history to which Silberman refers is often left out of academic histories of cyberculture. Indeed, a great many writers in cyberculture studies have taken the field to be a subspecies of visual culture (for example, Druckrey 1996; Manovich, forthcoming; Mitchell 1995; Robins 1996). It is one thing to claim that there is a visual dimension to cyberculture and that cyberculture might well connect up with other aspects of visual culture. It is another to subsume cyberculture under the rubric of visual culture, and this is my concern here.

There are many possible explanations for why sound is so neglected by cyberculture scholars. We could blame it on the organization of the disciplines: while "visual culture" is an object of study and a set of problems

recognized across many humanities and social sciences (and one can find various kinds of "visual studies" positions advertised in many fields), "sound studies" is only an emergent term. Even though there exists a massive interdisciplinary archive of scholarship about sound, many of these writers are only beginning to notice one another, much less be noticed by people in other fields. Although there is some merit to the "organization of the disciplines" story, it is ultimately unsatisfying because cyberculture scholars have been quite creative in other areas of object construction. Yes, "visual culture studies" is an available scholarly orientation. And as Lisa Nakamura points out elsewhere in this volume, scholars of the Internet are only now waking up to the fact that it is filled with pictures as well as texts. But why has digital audio fared even worse than images in cyberculture studies?

A more robust answer lies in our historiography. Consider the available histories of digital media. Although the compact disc was the first digital medium widely adopted by consumers, it is rarely discussed in histories of cyberculture. For all our self-congratulation about moving into a new period of cyberculture studies, here is where the millennial specter still haunts us. Is it possible that CDs fare so poorly in our histories because so few people thought of them as "revolutionary" in any significant way? Because compact discs were a new storage medium that neither responded to nor required significant changes in practices and habits of music listening, they do not fit the model of new technology as "revolutionary."[4] While computers, networks, and various aspects of virtual reality have populated the available histories and prehistories of cyberculture, CDs warrant a footnote at best. The same can be said for digital sound synthesis, sampling, and digital audio recording in general (with the exception of the scholars cited above).

Sound is, pardon the pun, a blind spot of cyberculture historiography. Consider this "visual culture" narrative of the history of "virtuality," an important theme in cyberculture studies:

> Virtuality is a buzzword for the 1990s, a seemingly new way of experiencing the outside on the inside. . . . Some critics have wanted to call [it] a radical break with the past, heralding a transformation of everyday life unequalled since the Industrial Revolution. Others have insisted that there is relatively little new here, recalling a panoply of once-forgotten visual devices from the panorama to the stereoscope and zootrope that immersed the viewer in a seemingly real environment. For all the bluster, a middle way seems fairly clear. Virtuality has certainly been experienced before, perhaps as long as people have been sufficiently distracted by an artist's skill to take a picture briefly for reality. On the other hand, computer-generated environments offer the chance to interact with and change this illusory reality, an opportunity that no previous medium has been able to provide. At root, the question is the relationship between the human body and space, mediated by the sense of sight (Mirzoeff 1998, p. 181).

Nicholas Mirzoeff ought to be applauded for his attention to the tensions between historical continuity and change in the description of the present. And, to be fair, he is writing about cyberculture in the context of a reader on visual culture. But as I have argued elsewhere, even if we presuppose the "hegemony of the visual" (I do not), hegemony does not mean the totality of vision, and therein lies the rub. Mirzoeff's media history is entirely partial because he collapses media history into visual history. If virtuality has been experienced as long as people have been willing to take pictures for reality, then what about human-produced sounds? Next to (and before) panoramas, zootropes, and stereoscopes lies a history of automata, musical instruments, and architectural acoustics designed to produce synthetic auditory experiences. Whether these are "virtual" in the same way that we talk about virtuality today is open to question. But they are better and more preponderant examples of the phenomena Mirzoeff points to through reference to nineteenth-century visual technologies. We should be wary of collapsing the history of virtuality or any other dimension of cyberculture too quickly into the visual.

My criticism of the visual culture orientation is not just a matter of inclusion. Consider Mirzoeff's claims that "computer-generated environments offer the chance to interact with and change this illusory reality, an opportunity that no previous medium has been able to provide" or that "at root, the question is the relationship between the human body and space, mediated by the sense of sight" (p. 181). Both of these claims are simply untrue and leave out perhaps the most important and mundane experience of virtual space in twentieth-century media: audio recording. As Steve Jones (1993) has written, audio engineers have been producing one or another form of "virtual space" for most of the twentieth century through the use of careful microphone placement, synthetic echo and reverberation, and artificial manipulation of listeners' stereo fields. Indeed, many of the problems now faced by Virtual Reality (VR) designers were first faced in the areas of sound design for audio recordings.

(Jones also deserves kudos for pointing out the visual bias of new media theory ten years ago; if only we'd listened!) Ken Hillis (1999) has smartly connected the visual obsession in VR theory with more tactile issues surrounding bodily motility—the experience of moving through the space and the connection between a VR helmet (or glasses or other head-mounted display) and a glove that measures movement. Hillis's point is that virtuality is not simply a visual experience but a multisensory one. Indeed, if virtuality is not defined as a purely visual experience, then it has a century-long history to be unearthed: the same problems of spatiality and motility were addressed over a century ago in early experiments with stereo audition and in attempts to use audio to give listeners a sense of spatial position (Bell 1880; Sterne 2003a, pp. 156–157).

The same kind of history exists regarding representations of information. "Audialization" is a term coined by Honor Harger (2003) to refer to the process whereby information is made more comprehensible by rendering it as sound. It is the auditory equivalent of the more familiar "visualization" of information, but in fact, it is older and more fully established. In fields such as radio astronomy, sound is often converted into images for easier scientific apprehension and comprehension. Yet sometimes sound provides more information than sight. For instance, the rotation of a pulsar becomes much more comprehensible when it is actually heard by a listener. As with spatialization, attempts to comprehend and analyze phenomena by converting them into sound (or merely attending to their sonic characteristics) have a history much longer than that of cyberculture. For instance, from the second decade of the nineteenth century, physicians used stethoscopes to audialize the otherwise imperceptible interiors of their patients' bodies (Sterne 2003a, pp. 99–136).

What do these histories of auditory media mean for cyberculture scholarship? At the most basic level, auditory media have, over the past century, developed in areas that are now considered central themes in cyberculture studies. Long before Virtual Reality hit the scene, there were media experiences designed specifically as artificial media experiences, and many of the so-called new problems of cyberculture have already been dealt with in the auditory realm. This is true for artificial senses of space; it is true for a sense of artificial or "pure" media experience; and it is true for even basic issues like interface design: for example, in Trevor Pinch and Frank Trocco's history of the Moog synthesizer, there is a very interesting chapter on debates over whether to control synthesizers through pianolike keyboards or through sets of knobs, sliders, and switches (Pinch and Trocco 2002, pp. 53–69).

As my auditory examples suggest, our available histories of cyberculture are highly selective. They would seem even more selective if we explored the olfactory, tactile, and gustatory dimensions of sensory media history. Though the "postmodern turn" has held much less sway over historical writing than its ethnographic counterpart, it is widely accepted that when we write a history, the inclusions and exclusions are the result of conscious, methodical choices by the historian, and not simple, empirical facts "out there" that the historian has apprehended. History is the act of writing about the past. The past itself is always a step away from its description (on the disjuncture between historical description and its object, see Derrida 1976; Lacapra 1985; and White 1978; on the postmodern turn in historical writing, see Jenkins 1997 and Novick 1988).

One of the most important choices a historian makes is that of periodization. Periodization is, most simply, how we mark periods in our histories. The simplest periodization of cyberculture studies would be a binary operation: there was analog, and now there is digital. Nicholas Negroponte's much-maligned *Being Digital* (1995) implies this kind of all-or-nothing approach. The opposite is not much more fruitful: cyberculture is simply the latest version of trends we can identify since the invention of writing. Books like Tom Standage's *Victorian Internet* (1998) are useful because they show that claims about the power of new media recur across historical periods, but taken too far, the argument turns into a claim that there is nothing new under the sun. Other writers have attempted to bridge the gap through the rather dubious notion of "prehistory," which implies periods very clearly: everything before cyberculture leads up to it. Yes, there are times when we must, as C. Wright Mills (1959, p. 154) said, "study history in order to get rid of it," but as of yet we have a relatively limited historical palette for cyberculture.

Of course, many histories do take more nuanced approaches. Mirzoeff attempts to distinguish between old and new visual technologies in the account cited earlier. We can also find many standard periodizations of cyberculture history by technology: computers → personal computers → Internet; by art: avant-garde art → cyberpunk → cyberculture; and even by economics: fordism → postfordism. My point is not to catalog the approaches but rather to point out what is at stake in choosing them: once we define our periods, we set our limits. We make choices about inclusion

and exclusion. I am arguing that we should attend to those choices with much greater care. We should treat the historical periods in our writing less like self-evident categories in our data and more like problems to be considered and debated. We should place object construction at the very center of our intellectual project.

I borrow the phrase "object construction" from Pierre Bourdieu and his collaborators (Bourdieu, Chamboredon, and Passeron 1991; Bourdieu and Wacquant 1993). Bourdieu believed that the two most important moments in social research were the "epistemic break" and the "construction of the object." As a sociologist, Bourdieu saw many other people in his field who accepted their research problems as they were defined by policy bodies or journalistic reports. Those scholars accepted prepackaged or, in Bourdieu's words, "pregiven" research problems that carried with them the assumptions of the institutions in which they were defined. If scholars do not make an "epistemic break" with the existing ways of defining a problem, they risk importing unwanted and unexamined institutional or personal biases into their work (I am *not* arguing for unbiased work, only that we attend to our biases and choose them with care). Once we have broken with existing assumptions, we then must begin defining our object of study: we have to classify it, figure out its "inside" and "outside," and choose a method with which to approach it. This is an especially important issue in the study of technology, where there are strong institutional imperatives for certain kinds of technological study (I develop this further in Sterne 2003b).

If we cannot assume what does and does not count as cyberculture in our histories, then for each study we do, we need to reclassify it. Each time we approach a new question or object in cyberculture studies, we need to figure out what is "inside" the category of cyberculture and what is "outside" it. Once we make these distinctions, we need to choose research methods appropriate to our objects. In other words, these are not questions on which the field should settle but, rather, questions with which we should constantly wrestle. This is *especially* important in cyberculture studies. Consider the very unfortunate and bad habit of many cyberculture scholars who use the term "technology" synonymously with "digital technology," as if other kinds of technologies had never existed. The first step in a sensitivity to history as a problem is to attend to the differences between our subject and a long, complex, and significant history of technology that spans the entirety of human civilization. This elision points

to another important dimension of periodization and historical object construction: cyberculture scholars need to develop a better sense of how cyberculture fits into larger phenomena. If we give up the everything-or-nothing-is-new approach, if we expand the range of technologies and practices admitted to the domain of cyberculture studies, we will also have to develop coherent explanations of how the history of cyberculture fits into larger histories like communication history, cultural history, political history, and the history of technology. Indeed, what goes for the past also goes for the present: we will need accounts of the relationship between cyberculture as a specific domain and the larger domains of culture, politics, media, and technology.

As the field enters a new phase, we need a richer sense of the history of cyberculture and the larger histories of which cyberculture is a part. This will help us break out of some of the methodological ruts in scholarship on contemporary phenomena as well. As works like Haraway's "Cyborg Manifesto" (1991), Turkle's *Life on the Screen* (1995), Stone's *War of Desire and Technology at the Close of the Mechanical Age* (1995), and a small group of others become staples of cyberculture syllabi, fleets of studies that reproduce their methods and conclusions have emerged. But we should not blame our canonical authors for their mediocre imitators: their works are staples of cyberculture syllabi precisely because they innovated in their time. They came up with new objects and new approaches, and they challenged us to think differently. Now that they have won us over (on at least a few points) we would do well to take a lesson from their scholarly ethic rather than from their conclusions. Ultimately, our job is to invent and not to repeat.

In this chapter, I have explored some gaps in cyberculture scholarship by criticizing its visualist bias and gesturing toward sound history. But it should be clear that my purpose is not to wag a finger and say, "you all should be studying sound." Far from it. My foray into sound and historical method offers a warning. My critique here is quite easy, almost too easy in way, and it leads me to wonder what other aporias we carry with us as cyberculture scholars. After about a decade of criticizing millennial claims for digital media, we are only just now finding robust alternatives for historical and contemporary description of cyberculture. We are very much at the beginning of object construction, and we are in a moment when it might be good to spend a little more time looking over our shoulders and gazing at our navels (though we need not do it all in print). Ultimately, we

have no choice as critical, responsible intellectuals but to refuse the temptations of pregiven problems, ossified methods, and familiar conclusions. Our jobs require the hard work of object construction. The alternative is oblivion.

NOTES

1. Many thanks to Carrie Rentschler and Fred Turner, who made comments on earlier versions of this essay. Thanks also to David Silver, Adrienne Massanari, and the other contributors to the book for their comments on the piece and an inspiring occasion on which to present an earlier version.

2. But even as our field and object begin to stabilize, we should be wary of false closure: for instance, in twenty years will there be an "Internet" for Internet scholars to study?

3. Mike Ayers's forthcoming edited collection, *Cybersounds,* could be an important bridge between scholarship on cyberculture and scholarship on digital music and audio.

4. Oddly, CDs were "revolutionary" in at least one way: they were able to artificially prop up the music industry's lagging sales for over a decade. The film industry followed the CD model with its move to the DVD standard, with outstanding results: the DVD is the most quickly adopted format in the history of consumer electronics.

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Chapter 2

Cultural Difference, Theory, and Cyberculture Studies

A Case of Mutual Repulsion

Lisa Nakamura

In a famous and oft-quoted formulation, postcolonial feminist critic Gayatri Spivak asks in an essay of the same name, "Can the Subaltern Speak?" This query brings to mind an answering one: can the subaltern read . . . any of the essays and books that Spivak, Homi Bhabha, and Judith Butler have written? Bhabha and Butler won second and first place in the 1998 annual prize for bad prose handed out by *Philosophy and Literature,* and even their strongest supporters would be hard put to describe their expository style as anything but dense.[1] The irony here, of course, is that their theories deal exclusively with the state of the marginalized, abject, nonnormative subject under capitalism, colonialism, and other manifestations of power and hegemony in Western culture.

So clearly, there is no shortage of theoretical firepower if one is looking for critical theories of cultural difference. However, there is a telling disconnect in the way that "theory" has disseminated itself in cyberculture studies. There is certainly no lack of postmodernists, cyberfeminists, posthumanists, poststructuralists, and even Frankfurt School approaches to cyberculture studies. However, the "post" in "postmodern" is emphatically *not* the "post" in "postcolonial" in the case of studies of new technologies. As a result, like numerous other anthologies, David Trend's excellent *Reading Digital Culture* (2001) features essays by Zizek, Guattari, Virilio, and Ronell, all well-known critical theorists of culture and technology. However, there are no "theory" articles on cultural difference in the book: those that do deal with the topic appear in a separate section of the collection and are by either digital artists, ethnographers, or other nontheory types.