

# Control and Freedom

Power and Paranoia in the Age of Fiber Optics

*Wendy Hui Kyong Chun*

The MIT Press Cambridge, Massachusetts London, England

© 2006 Massachusetts Institute of Technology

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from the publisher.

MIT Press books may be purchased at special quantity discounts for business or sales promotional use. For information, please e-mail <special\_sales@mitpress.mit.edu> or write to Special Sales Department, The MIT Press, 55 Hayward Street, Cambridge, MA 02142.

This book was set in Janson and Rotis Semi Sans on 3B2 by Asco Typesetters, Hong Kong. Printed and bound in the United States of America.

Library of Congress Cataloging-in-Publication Data

Chun, Wendy Hui Kyong, 1969–

Control and freedom : power and paranoia in the age of fiber optics / by Wendy Hui Kyong Chun.

p. cm.

Includes bibliographical references and index.

ISBN 0-262-03332-1 (hc : alk. paper)

1. Optical communications. 2. Fiber optics. 3. Technology and civilization. I. Title.

TK5103.59.C58 2005

303.48'33—dc22

2004061362

10 9 8 7 6 5 4 3 2 1

## INTRODUCTION

We have lived in, and still live in, exciting times, from the fall of the Berlin wall to the heady days of the dot-com era, from the events of September 11, 2001, to the ongoing turmoil in geopolitical relations. All these events have been linked to freedom: the triumph of the Free World, the free market, and the free circulation of information; threats to freedom from abroad, and the U.S. mission to spread democracy and freedom. All these events have also been linked to technology and networks: Eastern Europe's collapse has been attributed to computer technology and broadcast/satellite television; terrorist networks turn everyday technologies like airplanes and cell phones into weapons; the U.S. military's and intelligence agencies' control and communications networks are without rival, if not without fault. But what does it mean to attribute such causality to technology and link freedom to what are essentially control technologies?

*Control and Freedom: Power and Paranoia in the Age of Fiber Optics* responds to this question by revealing how power now operates through the coupling of control and freedom. Although ideologies and practices of freedom and control are not new, the coupling of these terms is uniquely tied to information technology and our current political situation. Control-freedom, which is intimately experienced as changes in sexuality and race, is a reaction to the increasing privatization of networks, public services and space, and to the corresponding encroachment of publicity and paranoia into everyday life. The end of the Cold War has not dispelled paranoia but rather spread it everywhere: invisibility and uncertainty—of the enemy, of technology—has invalidated deterrence and moved paranoia from the pathological to the logical. This twinning of control and freedom subverts the promise of freedom, turning it from a force that simultaneously breaks bonds and makes relation possible to

the dream of a gated community writ large. This subversion of freedom, however, does not forever render freedom innocuous, for if anything cannot be controlled it is freedom. The emergence of the Internet as a mass medium, this book argues, epitomizes this new structure of power and the possibilities for a freedom beyond control.

### **The Internet as ~~Mass~~ Medium**

The Internet, conflated with cyberspace, was sold as a tool of freedom, as a freedom frontier that by its nature could not be tamed: the Internet supposedly interpreted censorship as damage and routed around it.<sup>1</sup> Further, by enabling anonymous communications, it allegedly freed users from the limitations of their bodies, particularly the limitations *stemming* from their race, class, and sex, and more ominously, from social responsibilities and conventions. The Internet also broke media monopolies by enabling the free flow of information, reinvigorating free speech and democracy. It supposedly proved that free markets—in a “friction-free” virtual environment—could solve social and political problems. Although some condemned the Internet for its excessive freedoms, for the ways in which it encouraged so-called deviant behavior that put our future at risk, the majority (of the Supreme Court at least) viewed the Internet as empowering, as creating users rather than couch potatoes, as inspiring Martin Luthers rather than channel surfers.

This rhetoric of the Internet as freedom, excessive or not, was also accompanied by Internet rumors of the Internet as a dark machine of control. For many, Echelon—a shadowy intelligence network operated by the United States, the United Kingdom, Canada, Australia, and New Zealand, and stemming from the 1947 UKUSA agreement in which the Anglo allies turned their antennas from Berlin to Moscow—epitomized the dangers of high-speed telecommunications networks, even though its exact capabilities (especially its ability to penetrate fiber-optic networks) and goals both remain unclear.<sup>2</sup> For others, mysterious corporate “cookies,”

---

1. This phrase is usually attributed to John Gilmore.

2. See Friedrich Kittler’s “Cold War Networks or Kaiserstr. 2, Neubabelsberg,” in *New Media, Old Media: A History and Theory Reader*, eds. Wendy Hui Kyong Chun and Thomas Keenan (New York: Routledge, 2005), 181–186.

---

allegedly capable of following our every move, or voracious “packet sniffers” epitomized the risk of going online. The Internet, rather than enabling freedom, enabled total control.

So, was or is the Internet a tool of freedom or control? Does it enable greater self-control or surveillance? *Control and Freedom: Power and Paranoia in the Age of Fiber Optics* argues that these questions and their assumptions are not only misguided but also symptomatic of the increasingly normal paranoid response to and of power. This paranoia stems from the reduction of political problems into technological ones—a reduction that blinds us to the ways in which those very technologies operate and fail to operate. The forms of control the Internet enables are not complete, and the freedom we experience stems from these controls; the forms of freedom the Internet enables stem from our vulnerabilities, from the fact that we do not entirely control our own actions.

Consider, for instance, what happens when you browse a Web page. Your computer sends information, such as your Internet Protocol (IP) address, browser type, language preference, and userdomain (your userdomain often contains information such as your physical location or username).<sup>3</sup> More important, the moment you “jack in” (for networked Macs and Windows machines, the moment you turn on your computer), your Ethernet card participates in an incessant “dialogue” with other networked machines. You can track this exchange using a packet sniffer, a software program that analyzes—that is, stores and represents—traffic traveling through a local area network (see figure 1).<sup>4</sup> Your screen, with its windows and background, suggests that your computer only sends and receives data at your request. It suggests that you are that all-powerful user Microsoft invoked to sell its Internet Explorer by asking, “Where do you want to go today?” Using a packet sniffer, however, you can see that your computer constantly wanders without you. Even when you are not

---

3. As discussed in more detail in chapter 2, Hypertext Transfer Protocol (HTTP) headers include “from” (your e-mail address), and “Client-IP” (your IP address), and “Referer” (Universal Resource Locator of the document that contains the request Universal Resource Identifier), among many others.

4. For more on packet sniffers, see the Sniffer FAQ. (<<http://www.robertgralpubs/sniffing-tag.html>> (accessed September 1, 2003).

“using,” your computer sends and receives, stores and discards—that is, reads—packets, which mostly ask and respond to the question “Can you read me?” These packets are anything but transparent to you, the user: not only must you install a sniffer to see them; you must also translate them from hexadecimal—that is, if your operating system (OS) allows you to install a sniffer, which classic Macs do not.

Screening this traffic and making analogous browsing the Web and reading a “page” focuses attention on the text and the images pulsing from the screen, rather than on the ways in which you too are coded and circulated numerically, invisibly, nonvolitionally. Rather than simply allowing people to exercise what Walter Benjamin once called their “legitimate claim to be reproduced,” the Internet circulates their “reproductions” without their consent and knowledge.<sup>5</sup> Also, rather than simply shattering tradition and bursting open “our prison world,” computation’s rampant reproductions—its reading as writing elsewhere—literalize control (that is, if it did not make the literal metaphorical). According to the *Oxford English Dictionary*, the English term *control* is based on the French *contreroule*—a copy of a roll of an account and so on, of the same quality and content as the original. This control gives users greater access to each other’s reproductions.

Putting sniffers into “promiscuous mode,” for instance, accesses all the traffic going through a cable. Depending on the network topology (in older networks bus versus star; in newer ones hub versus switch) and the sniffer’s location, the sniffer may access a lot of information or very little. Significantly, though, Ethernet cards routinely read in all packets and then discard those not addressed to it; promiscuous mode does not alter an Ethernet card’s normal reading habits. The client-server model of the World Wide Web, in which your computer (the client) only receives data from machines designated as servers, is a software and cultural construction. Every computer with an Ethernet card serves information. This active reading reveals that *for now*, data is cheap and reproducible in ways that defy, rather than support, private property, although those lob-

---

5. Walter Benjamin, “The Work of Art in the Age of Mechanical Reproduction,” in *Illuminations: Essays and Reflections*, trans. Harry Zohn (New York: Schocken Books, 1968), 232.

---

The screenshot shows a window titled "Network Packets" with a table of captured packets. Below the table are tabs for "Datalink", "IP", "Protocol", and "Payload". The "Datalink" tab is selected, showing "Datalink Header Information" with fields for Interface Name, Interface Type, Source Address, Destination Address, and Packet Type.

| src address       | port | dst address       | port | prot        | size (payload) | time     |
|-------------------|------|-------------------|------|-------------|----------------|----------|
| 0.0.0.0           | 123  | 255.255.255.255   | 123  | UDP         | 48             | 15:35:44 |
| 00:04:00:C2:20:FA |      | FF:FF:FF:FF:FF:FF |      | unknown i   | 96             | 15:35:38 |
| 00:04:00:C2:20:FA |      | FF:FF:FF:FF:FF:FF |      | Novell, Inc | 104            | 15:35:38 |
| 00:04:00:C2:20:FA |      | FF:FF:FF:FF:FF:FF |      | unknown i   | 96             | 15:35:38 |
| 00:04:00:C2:20:FA |      | FF:FF:FF:FF:FF:FF |      | unknown i   | 99             | 15:35:38 |
| 0.0.0.0           | 123  | 255.255.255.255   | 123  | UDP         | 48             | 15:35:23 |
| 00:D0:CF:00:C5:98 |      | FF:FF:FF:FF:FF:FF |      | ARP         | 46             | 15:35:08 |
| 0.0.0.0           | 123  | 255.255.255.255   | 123  | UDP         | 48             | 15:34:54 |
| 00:04:00:C2:20:FA |      | FF:FF:FF:FF:FF:FF |      | unknown i   | 96             | 15:34:38 |

**Datalink Header Information**

Interface Name:  
Interface Type:  
Source Address:  
Destination Address:  
Packet Type:

| Figure 1 |  
Packet sniffer

bying for stronger copyright laws have also argued that every electronic reading potentially infringes copyright for the same reason. This machine reading makes our digital traces resilient.

Importantly, without this incessant and seemingly disempowering exchange of information, there would be no user interactions, no Internet. The problem is not with the control protocols that drive the Internet—which themselves assume the network’s fallibility—but rather with the way these protocols are simultaneously hidden and amplified. This exchange does not inherently enable global surveillance. Fantasies about corporate cookies that malevolently track our every online interaction or unfailing global spy systems also mask the constant, nonvolitional exchange of information that drives the Internet. The Internet as an unfailing surveillance device is thus the obverse, not the opposite, of the Internet as an agency-enhancing marketplace, for it too gives purpose—maps as volitional and permanent—nonvolitional and uncertain software-dependent interactions. This myth also screens the impossibility of storing, accessing, and

analyzing everything. Even the U.S. National Security Agency (NSA) admits this impossibility, which is why its intercept equipment automatically stores encrypted packets. The enormous, ever-increasing amount of unanalyzed data belies the computer's analytic promise and demarcates the constitutive boundaries of an "information society." Furthermore, this myth contradicts people's everyday experiences with computers by concealing the ephemerality of information (computer memory is an oxymoron), and the importance of software and local conditions. Computers crash on a regular basis, portable storage devices become unreadable, and e-mail messages disappear into the netherworld of the global network, and yet many people honestly believe in a worldwide surveillance network in which no piece of data is ever lost.

These paranoid narratives of total surveillance and total freedom are the poles of control-freedom, and are symptomatic of a larger shift in power relations from the rubric of discipline and liberty to that of control and freedom.

### Control and Freedom

Gilles Deleuze has most influentially described control societies in his "Postscript on Control Societies," in which he argues that we are moving from disciplinary societies, as outlined by Michel Foucault in *Discipline and Punish*, to control societies. According to Foucault, disciplinary societies emerged in the eighteenth century in response to the rise of capitalism and the attendant need for useful bodies. The disciplines offered a finer resolution than sovereign power at a lower cost: the disciplines made power productive, continuous, and cost-effective by moving the emphasis from the body of the king to those "irregular bodies, with their details, their multiple movements, their heterogeneous forces, their spatial relations."<sup>6</sup> Disciplinary power differed from sovereign power absolutely: sovereign power was based on the physical existence of the sovereign, who exercised his power spectacularly, if discontinuously. His was a power to inflict death. Disciplinary power operated through visible yet unverifiable apparatuses of power that sought to fabricate individuals through isolation

---

6. Michel Foucault, *Discipline and Punish: The Birth of the Prison*, trans. Alan Sharning (New York: Vintage Books, 1978), 208.

---



and constant examination—it was a power over life. Describing the measures taken in response to the plague, Foucault argues, “the enclosed, segmented space, observed at every point, in which the individuals are inserted in a fixed place, in which the slightest movements are supervised, in which all events are recorded, in which an uninterrupted work of writing links the centre and the periphery . . . all this constitutes a compact model of the disciplinary mechanism.”<sup>7</sup>

The Panopticon encapsulated the disciplinary mechanism for Foucault. Proposed by Jeremy Bentham as a humane and cost-effective solution to dark, festering prisons, unsanitary hospitals, and inefficient schools and workhouses, the Panopticon comprised a central guard tower and a shorter outer annular structure (with windows on the outer circumference and iron gating on the inner) in which the prisoners/workers/patients were individually housed. In the Panopticon, visibility was a trap—the inhabitants could always be viewed by the central tower, but since the windows of the central tower were to be covered by blinds (except during chapel service), they could never be certain when they were being watched. The major effect of the Panopticon was to “induce in the inmate a state of conscious and permanent visibility that assures the automatic functioning of power.”<sup>8</sup> To work, power had to be visible, yet unverifiable. Panoptic discipline worked by causing the inmate/worker/student to recreate his or her world, to internalize the light and become light, within an enclosed space.<sup>9</sup> A bourgeois society formally committed to “liberty,

---

7. Ibid., 197.

8. Ibid., 201.

9. Not accidentally, this process of re-creation parallels the process of paranoid recovery. As, to cite Sigmund Freud, “the paranoiac builds [the world] again, not more splendid, it is true, but at least so that he can once more live in it,” the inmate/student/worker is called to rebuild their own interior world. If the paranoiac “builds [their world] up by the work of [their] delusion,” the inmate/student/worker rebuilds their world by the work of the delusion of constant surveillance. As with the paranoiac, “*the delusion-formation, which we take to be a pathological product, is in reality an attempt at recovery, a process of reconstruction*” (Sigmund Freud, “Psychoanalytic Notes upon an Autobiographical Account of a Case of Paranoia [Dementia Paranoides],” in *Three Case Histories* ([New York: Collier Books, 1963], 147). Rehabilitation becomes paranoid reconstruction.

---

equality, fraternity” thus needed the disciplines, for as Foucault asserts, the disciplines serve as a sort of “counter-law,” introducing asymmetries and excluding reciprocities in a facially equal system. Creating a “private link” between people, the disciplines bring about the nonreversible subordination of one group of people by another, so that “surplus” power is always fixed on the same side.<sup>10</sup>

Deleuze maintains that the confinement and the mass individuation symptomatic of disciplinary societies is now yielding to flexibility and codes—that is, control. Control society is not necessarily better or worse than disciplinary society; rather, it introduces new liberating and enslaving forces. Whereas disciplinary society relied on independent variables or molds, control society thrives on inseparable variations and modulations: factories have given way to businesses with “souls” focused on metaproduction and on destroying unions through inexorable rivalry; schools have given way to continuing education and constant assessment; new prison techniques simultaneously offer greater freedom of movement and more precise tracking; and the “new medicine ‘without doctors and

---

10. For Foucault, power is not something that one possesses, nor is it a force that simply represses. Rather, as he argues in *The History of Sexuality, Volume I: An Introduction*, trans. Robert Hurley (New York: Vintage Books, 1978):

Power must be understood in the first instance as the multiplicity of force relations immanent in the sphere in which they operate and which constitute their own organization; as the process which, through ceaseless struggles and confrontations, transforms, strengthens, or reverses them; as the support which these force relations find in one another, thus forming a chain or a system, or on the contrary, the disjunctions and contradictions which isolate them from one another; and lastly, as the strategies in which they take effect, whose general design or institutional crystallization is embodied in the state apparatus, in the formulation of the law, in various social hegemonies . . . it is the moving substrate of force relations which by virtue of their inequality, constantly engender states of power, but the latter are always local and unstable. (92–93).

Power is not something that exists abstractly, but only exists in its application; also, where there is power, there is resistance. Importantly, as he argues in “Two Lectures” (in *Power/Knowledge: Selected Interviews and Other Writings, 1972–1977*, ed. Colin Gordon [New York, Pantheon Books, 1980, 78–108]) the fact that power exists in and creates a net-like structure in which everybody acts does not mean “power is the best distributed thing in the world, although in some sense that is so. We are not dealing with a sort of democratic or anarchic distribution of power through bodies” (99).

---

patients’ identifies potential cases and subjects at risk” without attempting treatment. According to Deleuze, these all “form a system of varying geometry whose language is *digital* (though not necessarily binary).”<sup>11</sup> The computer, with its emphasis on information and its reduction of the individual to the password, epitomizes control societies. Digital language makes control systems invisible: we no longer experience the visible yet unverifiable gaze but a network of nonvisualizable digital control.

Deleuze’s reading of control societies is persuasive, although arguably paranoid, because it accepts propaganda as technological reality, and conflates possibility with probability. Just as panopticism overestimated the power of publicity, so too does control-freedom overestimate the power of control systems.<sup>12</sup> This is not to say that Deleuze’s analysis is not correct but rather that it—like so many other analyses of technology—unintentionally fulfills the aims of control by imaginatively ascribing to control power that it does not yet have and by erasing its failures. Thus, in order to understand control-freedom, we need to insist on the failures and the actual operations of technology. We also need to understand the difference between freedom and liberty since control, though important, is only half of the story.

Although used interchangeably, freedom and liberty have significantly different etymologies and histories. According to the *Oxford English Dictionary*, the Old English *frei* (derived from Sanskrit) meant dear and described all those close or related to the head of the family (hence friends). Conversely in Latin, *libertas* denoted the legal state of being free versus enslaved and was later extended to children (*liberi*), meaning literally the free members of the household. Those who are one’s friends are free; those who are not are slaves. But, like love, freedom exceeds the subject. Liberty is linked to human subjectivity; freedom is not. The Declaration of Independence, for example, describes men as having liberty and

---

11. Gilles Deleuze, “Postscript on Control Societies,” in *CTRL [SPACE]: Rhetorics of Surveillance from Bentham to Big Brother*, eds. Thomas Y. Levin et al. (Cambridge: MIT Press, 2002), 320–321, 318.

12. For more on Jeremy Bentham’s overestimation of publicity, see Foucault’s discussion of the importance of media in “The Eye of Power,” in *Power/Knowledge: Selected Interviews and Other Writings, 1972–1977*, 146–165.

---

the nation as being free. Free will—“the quality of being free from the control of fate or necessity”—may first have been attributed to human will, but Newtonian physics attributes freedom—degrees of freedom, free bodies—to objects.

Freedom differs from liberty as control differs from discipline. Liberty, like discipline, is linked to institutions and political parties, whether liberal or libertarian; freedom is not. Although freedom can work for or against institutions, it is not bound to them—it travels through unofficial networks. To have liberty is to be liberated from something; to be free is to be self-determining, autonomous. Freedom can or cannot exist within a state of liberty: one can be liberated yet “unfree,” or “free” yet enslaved (Orlando Patterson has argued in *Freedom: Freedom in the Making of Western Culture* that freedom arose from the yearnings of slaves). Freedom implies—or perhaps has become reduced to—freedom of movement: you drive on a freeway, not a libertyway. Free love and free speech move from location to location, person to person. Hackers declare that information, which is technically a measure of the degree of freedom within a system, should be free. Freedom, in its current distinction from liberty, responds to liberty’s inadequacies. Freedom, as freedom of movement, cannot easily endorse segregation—there can be no equal but separate. The “freedom rides” of the civil rights movement responded to emancipation’s inadequacies. Crucially, this difference between freedom and liberty makes sense mainly in Anglo languages. U.S. politics, from segregation to late-twentieth- and early-twenty-first-century U.S. global power, arguably generates the pronounced distinction between the two.

In an odd extension of commodity fetishism, we now wish to be as free as our commodities: by freeing markets, we free ourselves.<sup>13</sup> And

---

13. According to Karl Marx, “The mysterious character of the commodity-form consists ... in the fact that the commodity reflects the social characteristics of men’s own labor as objective characteristics of the products of labor themselves, as the socio-natural properties of these things.... [I]t is nothing but the definite social relation between men which assumes here, for them, the fantastic form of a relation between things” (*Capital*, vol. 1 trans. Ben Fowkes, [New York: Penguin Books with New Left Review, 1976], 164–166). The commodity now seems to be endowed with *freedom*, operating in a free marketplace: now the desire is to emulate such a commodity.

---

this freedom is supposed to resonate with all the greatness of prior liberations. If once “white man’s burden,” it is now “enduring freedom”; if once “liberty, equality, and fraternity,” now “freedom, democracy, free enterprise.” George W. Bush’s new tripartite motto hijacks the civil rights movement, erases equality and fraternity, and makes ambiguous the subject of freedom. Bush asserts that “the concept of ‘free trade’ arose as a moral principle even before it became a pillar of economics. If you can make something that others value, you should be able to sell it to them. If others make something that you value, you should be able to buy it. This is real freedom, the freedom for a person—or a nation—to make a living.”<sup>14</sup> His statement unashamedly and uncannily resonates with Karl Marx’s condemnation of bourgeois freedom: “In a bourgeois society capital is independent and has individuality, while the living person is dependent and has no individuality. . . . By freedom is meant, under the present bourgeois conditions of production, free trade, free selling and buying.”<sup>15</sup> Freedom as stemming from a commodity’s “natural” qualities reflects capitalism’s naturalization and the new (rhetoric of) transparency.

### Sexuality in the Age of Fiber Optics

As the rest of this book elaborates, the relationship between control and freedom in terms of fiber-optic networks is often experienced as sexuality or is mapped in terms of sexuality-paranoia.

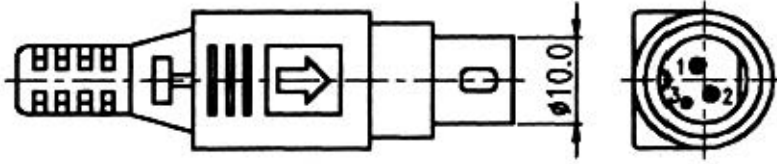
The insight that power can be experienced as sexuality is indebted to the work of Foucault and the psychotic Daniel Paul Schreber (and Eric Santner’s interpretation of his memoirs). Foucault, in the first volume of his uncompleted *History of Sexuality*, contends that sexuality is “the secret” instrumental to power/knowledge. Since modernity, we have constantly confessed the truth of sex: from seventeenth-century Catholic confessions that demanded more and more technical details to 1960s’ declarations of sexual freedom and revolt; from psychoanalysis to institutional

---

14. Office of the White House, *National Security Strategy of the United States of America*, <<http://www.whitehouse.gov/nsc/nss.html>> (accessed October 1, 2003).

15. Karl Marx and Frederick Engels, *Communist Manifesto* (Peking: Foreign Languages Press, 1975), 52.

---



| Figure 2 |  
Male connector

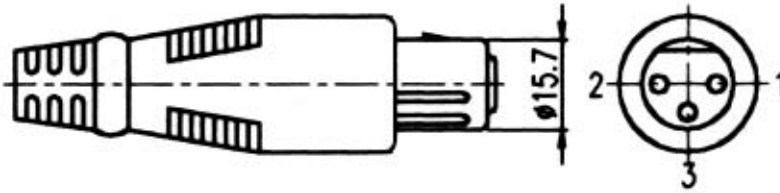
architecture. Sexuality is key to determining the subject—its causality, its unconscious, the truth it holds unbeknownst to itself. Sexuality is the meeting point between the two objects of biopower (the power over life): the individual and the species. As such, sexuality is intimately linked to twentieth-century racism (state-sponsored programs to further the survival of the species). Sexuality, for Foucault, is a dense transfer point for relations of power “between men and women, young people and old people, parents and offspring, teachers and students, priests and laity.” It “require[s] the social body as a whole, and virtually all of its individuals, to place themselves under surveillance.”<sup>16</sup>

Given Foucault’s thesis perhaps it is not surprising that sex and sexuality dominate descriptions and negotiations of the thrills and the dangers of networked contact. In terms of hardware, male-to-female connectors configure all electronic information exchange as electrifying heterosexual intercourse (see figures 2, 3, and 4). In terms of software, computer viruses spread like sexually transmitted diseases, contaminating and reproducing uncontrollably.<sup>17</sup> In terms of content, pornography is “all over the Internet,” saturating the digital landscape and ranking among its more popular recreational uses. In terms of technology development, sex allegedly popularizes new devices: pornography is the “killer application” that

---

16. Foucault, *The History of Sexuality, Volume I: An Introduction*, 103, 116.

17. “Clit.exe” is a command line utility that converts an encrypted Lit book to Hypertext Markup Language (HTML), text, or any other format. In terms of operating systems, the UNIX “finger” command retrieves information about someone’s online activities, and one “mounts” a disk.



| Figure 3 |  
Female connector

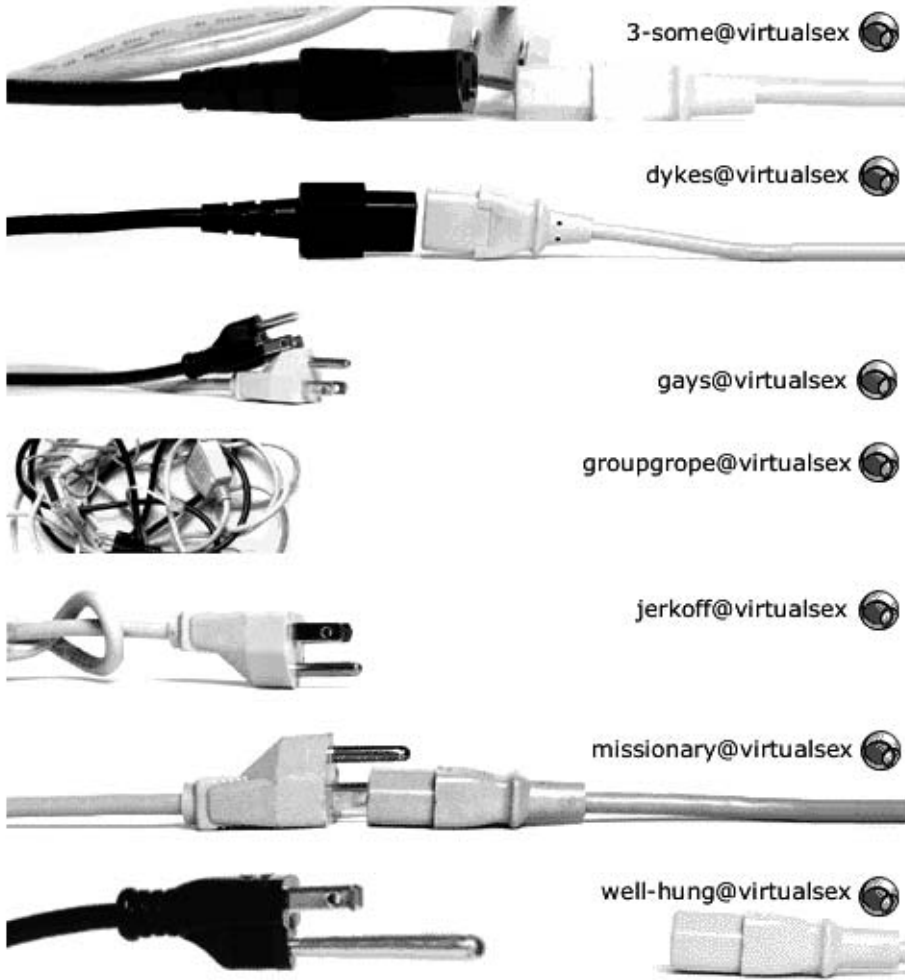
convinces consumers to invest in new hardware. New technology is a “carrier”—a new Trojan horse—for pornography; sex is “a virus that almost always infects new technology first.”<sup>18</sup> Sexuality is the linchpin for strategies as diverse as entrepreneurial capitalism, censorship, and surveillance. Cyberporn fueled the dot-com craze. In terms of censorship and surveillance, sexuality encapsulated and sequestered, and still encapsulates and sequesters, the risk of being online; anxiety over or desire for online contact is expressed as anxiety over or desire for sexual exposure. Before September 11, 2001, those seeking to censor the Internet, through public or private means, claimed without fail to be protecting children from the seamier sides of human sexuality. In the face of catastrophic, unrestrained, and unrestrainable contact that could compromise our species’ fitness, we were, and are, called to place ourselves under surveillance. Spun more positively, the release of “the seamier sides of human sexuality” encapsulates the freedom from history or materiality that the Internet promises. This freedom, however, as Mimi Nguyen has argued, must be read against the “bodies of Asian and Asian American immigrant women workers (in sweatshops and factories of varying working conditions) [that] provide the labor for the production of ... circuit boards, those instruments of identity play, mobility, and freedom.”<sup>19</sup> The current explosion in

---

18. Gerard Van Der Leun, quoted in Mark Dery, *Escape Velocity* (New York: Groove Press, 1996), 218.

19. Mimi Nguyen, “Queer Cyborgs and New Mutants,” in *Asian America.Net*, eds. Rachel Lee and Sau-ling Wong (New York: Routledge, 2003), 300.

---



| Figure 4 |  
DM9 DDB Publicidade banner ad campaign for Brazilian Internet service provider, UOL-Universo Online,  
<<http://duplo.org/wille/>>



discourses about sex and sexuality, this book argues, is symptomatic of larger changes in biopower, and is intimately linked to changes in our understanding of race and changes to racism. The relationship between the individual and the species is changing, and the grid of liberties and discipline, which Foucault saw as key to modern power, is malfunctioning, for fiber-optic networks threaten a freedom and a democratization that threaten to verge out of control as well as calls for security bent on destroying them.

The current configuration of fiber-optic networks challenges disciplinary and regulatory power. Telecommunications monopolies, rules, and regulations have been and continue to be revised, many regulatory techniques have been rendered ineffectual, and many new, more invasive techniques are being introduced. The sheer number of Web sites, the multiple paths, and the rapidity with which sites are altered, built, destroyed, and mirrored makes regulation of this new ~~mass~~ medium far more difficult than any other (its closest predecessor is the telephone, which does not broadcast). However, unlike the telephone, it does make prosecution easier: if log files have been cached, one can track visits to a certain Web site or the sending location of e-mails (and one does not need a warrant in the United States or the United Kingdom to access these locations). Prosecution is also easier postevent because by then the search terms are obvious. In addition, the illusion of privacy—the illusion that what one does in front of one’s computer in the privacy of one’s own home is private—troubles the effectiveness of public standards.

Fiber-optic networks open the home. As Thomas Keenan has argued, all windows both separate and breach public and private spaces: behind the window, one is a knowing subject; before it, a subject “assumes public rights and responsibilities, appears, acts, intervenes in the sphere it shares with other subjects”; but the glaring light that comes through the window—exposing us to others, even before there is an us—is also something soft that breaks.<sup>20</sup> The computer window seems irreparable and unpluggable. In contrast to its predecessors, the jacked-in computer

---

20. Thomas Keenan, “Windows: Of Vulnerability,” in *The Phantom Public Sphere*, ed. Bruce Robbins (Minneapolis: University of Minnesota Press, 1997), 132.

---

window melts the glass and molds it into a nontransparent and tentacled cable. If “the philosophical history of the subject or the human is that of a light and a look, of the privilege of seeing and the light that makes it possible,” the light that facilitates the look can no longer be seen; we no longer see through the glass that connects, separates, and breaks.<sup>21</sup> Fiber-optic networks enable uncontrollable circulation. Richard Dienst, adapting Martin Heidegger’s “Age of the World Picture” to a “theory after television,” claims that “caught in the act of representing themselves to themselves . . . modern subjects place themselves in the ‘open circle of the representable,’” in a “shared and public representation.” A subject is thus “what can or believes it can offer itself representations,” “formed by the imperative to be an image, in order to receive images.”<sup>22</sup> Fiber optics threaten an infinite open circle of the “representable”—they melt and stretch the glass so that nothing screens the subject from the circulation and proliferation of images. At the same time, they displace representation by code, for if Heidegger emphasized representation as a placing before, no “thing” is placed before oneself.<sup>23</sup> Although medical fiber-optics are still looking glasses, fiber-optic networks use glass to relay light pulses that must be translated into voltages: rather than magnifying images, they relay data in a nonindexical manner.

### **Beyond, Before, in Front of the Screen**

To understand control and freedom in the context of fiber-optic networks, this book examines all four layers of networked media—hardware, software, interface, and extramedial representation (the representation of networked media in other media and/or its functioning in larger economic and political systems)—as well as the disconnect between them, and the possibilities and limitations for actions opened by them. It takes up N.

---

21. Ibid., 110.

22. Richard Dienst, *Still Life in Real Time: Theory after Television* (Durham, NC: Duke University Press, 1994), 140.

23. For more on fiber optics, see Jeff Hecht, *City of Light: The Story of Fiber Optics* (New York: Oxford University Press, 1999), and Joseph C. Palais, *Fiber Optic Communications*, 4th ed. (Upper Saddle River, NJ: Prentice Hall, 1998).

---

Katherine Hayles’s call for medium specific criticism, engaging visual *and* nonvisual aspects of networked machines—human and machine readings—as well as their economic and political impact. These aspects taken together reveal the erasures necessary for the Internet’s emergence as a ~~mass~~ medium and the possibilities opened by high-speed communications networks for something like democracy.<sup>24</sup>

By engaging the four layers of networked media, this book seeks to mediate between visual culture studies and media archaeology; to exaggerate slightly, the screen divides new media studies into these two fields. Visual culture studies stem from the Anglo-speaking academy and generally treats the interface, or representations of the interface, as the medium. The second approach, media archaeology, although inspired by Marshall McLuhan and Foucault, is mainly Germanic (most specifically, it emerges from the “Sophienstraße” departments of Humboldt University in Berlin). Taking as its ground zero McLuhan’s mantras of “the medium is the message” and “the content of a medium is always another medium,” media archaeology concentrates on the machine and often ignores the screen’s content. Archaeological studies critique visual culture studies’ conflation of interface with medium and representation with actuality; visual culture studies critique the archaeologists’ technological determinism and blindness to content and the media industry.<sup>25</sup>

This division between visual culture and media archaeology is not set in stone: many in both fields use the same theoretical sources, such as Foucault and Jacques Lacan. As well, many analyses can work both sides of the screen. For example, Lev Manovich’s *The Language of New Media* simultaneously investigates the parallels between cinematic and new media history and argues for the emergence of “software studies.” His five principles of new media (numerical representation, modularity, automation, variability, and transcoding) enable a formalist understanding of new media with an important twist. His last principle, transcoding, encapsulates his theoretical intervention succinctly: because new media objects are

---

24. See N. Katherine Hayles, *Writing Machines* (Cambridge: MIT Press, 2002).

25. For more on the distinction and relationship between the two fields, see Chun, “Introduction: Did Somebody Say New Media?” in *New Media, Old Media: A History and Theory Reader*, 1–10.

---

designed to both make sense to human users and follow established computer conventions, all new media objects consist of two layers (the cultural and the computer). For Manovich, these two layers are not equal: he asserts that media studies must be transformed into software studies. This privileging of software allows Manovich to translate between the unseen and the seen, which is theoretically if not practically possible (one cannot easily read compiled programs). The problem with “software studies” or transcoding, however, is this privileging of software as readable text; it ignores the significance of hardware and extramedial representation because it only moves between software and interface. Also, this notion of transcoding perpetuates the idea that software merely translates between what you see and what you cannot see, effectively erasing the many ways in which they do not correspond.<sup>26</sup>

This emphasis on software repeats the founding gesture of the Internet: the Internet seeks to make irrelevant hardware differences—its protocol enables networks to communicate regardless of which network (IEEE 802.x) standard is being used. Yet software, at a fundamental level, does not exist. As Friedrich Kittler argues, there is no software:

Not only no program, but no underlying microprocessor system could ever start without the rather incredible autobooting faculty of some elementary functions that, for safety’s sake, are burned into silicon and thus form part of the hardware. Any transformation of matter from entropy to information, from a million sleeping transistors into differences between electronic potentials, necessarily presupposes a material event called “reset”.

In principle, this kind of descent from software to hardware, from higher to lower levels of observation, could be continued over more and more decades. All code operations, despite their metaphoric faculties such as “call” or “return”, come down to absolutely local string manipulations and that is, I am afraid, to signifiers of voltage differences.<sup>27</sup>

---

26. For more on this, see Wendy Hui Kyong Chun, “On Software, or the Persistence of Visual Knowledge,” *grey room* 18 (winter 2005), 26–51.

27. Friedrich Kittler, “There Is No Software” <<http://www.ctheory.net/text-file.asp?pick-74>> (accessed August 1, 2004).

---

User control dwindles as one moves down the software stack; software itself dwindles since everything reduces to voltage differences as signifiers. Although one codes software and, by using another software program, reads noncompiled code, one cannot see software. Software cannot be physically separated from hardware, only ideologically.<sup>28</sup> The term *digital media* stresses hardware, for switches and vacuum tubes determined the difference between analog and discrete computation. Software has no intrinsic value, and the concept of software itself has changed over time. As Eben Moglen notes in “Anarchism Triumphant: Free Software and the Death of Copyright,” any part of a computer configuration that could be altered was initially called software.

Kittler, finessing his statement slightly, states that there would be no software if computer systems were not surrounded by “an environment of everyday languages, everyday languages of letters and coins, books and bucks.”<sup>29</sup> Whereas Kittler’s brilliant antihumanist critique focuses on humans as bottlenecks to the machinic symbolic system, this book’s critique dwells on the persistence of human reading, on the persistence of software as an ideological phenomenon, or to be more precise, as a phenomenon that mimics or simulates ideology.

In a *formal* sense, computers understood as comprising software and hardware are ideology machines. They fulfill almost every formal definition of ideology we have, thus revealing the paucity of our understanding of ideology. Consider, for instance, the commonsense (Marxist) notion of ideology as false consciousness, as some false interpretative apparatus that veils one’s vision, but that can be torn asunder. The movie *The Matrix* expresses this view succinctly. In *The Matrix*, humans are literally duped by software; software produces an insidious “residual self-image” (a kind of false consciousness) that prevents humans from seeing the real, which is (à la Jean Baudrillard) a desert. Not coincidentally, *The Matrix* is a filmic representation, for only cinema could visualize digital media as false

---

28. Those seeking to archive software programs face this indivisibility all the time. Many old software programs cannot be run on current computers, although custom-built virtual computer simulations can get around this difficulty.

29. Kittler, “No Software.”

---

consciousness so compellingly. Through this representation, cinema displaces its own metaphoric relationship to ideology and Plato's cave.<sup>30</sup>

To accept cinema's imaginings as accurate, however, is to philosophize in the dark. In terms of actual computer interfaces, Louis Althusser's definition of ideology as "a 'representation' of the imaginary relation of individuals to their real conditions of existence" resonates most strongly.<sup>31</sup> Software, or perhaps more precisely OS, offer us an imaginary relationship to our hardware: they do not represent the motherboard or other electronic devices but rather desktops, files, and recycling bins. Without OS, there would be no access to hardware—there would be no actions, no practices, no users. Each OS, in its extramedial advertisements, interpellates a "user": calls it and offers it a name or an image with which to identify. So, Mac users "think different" and identify with Martin Luther King and Albert Einstein; Linux users are open-source power geeks, drawn to the image of a fat, sated penguin; and Windows users are mainstream, functionalist types comforted, as Moglen contends, by their regularly crashing computers.<sup>32</sup> Importantly, the "choices" operating systems offer limit the visible and the invisible, the imaginable and the unimaginable. UNIX allows you to have multiple desktops and to share them—as of 2005, neither MacOS nor Windows does this. The only place Microsoft allows you to move its desktop Internet Explorer icon is the trash. You are not, however, aware of software's constant constriction and interpellation (also known as its user-friendliness) unless you find yourself frustrated with its defaults, which are rather remarkably referred to as *your* preferences, or if you use multiple operating systems or competing software packages. The term *user-friendly*, as Natalie Jeremijenko has argued,

---

30. For more on this, see John-Louis Baudry, "The Apparatus: Metapsychological Approaches to the Impression of Reality in the Cinema," in *Narrative, Apparatus, Ideology: A Film Theory Reader*, ed. Philip Rosen (New York: Columbia University Press, 1986), 299–318.

31. Louis Althusser, "Ideology and Ideological State Apparatuses (Notes towards an Investigation)," in *Lenin and Philosophy and Other Essays*, trans. Ben Brewster (New York: Monthly Review Press, 1971), 162.

32. For more on the significance of fat penguins, see Linus Torvalds, "Why a Penguin?" <<http://www.linux.org/info/penguin.html>> (accessed January 1, 2004).

---

implies that human users are inert and interchangeable, and that software is active and animate.<sup>33</sup> Of course, users know very well that their folders and recycling bins are not really folders and recycling bins. This knowledge, however, rather than disqualifying the relationship between software and ideology, buttresses it. As Slavoj Žižek, drawing from Peter Sloterdijk, argues, “ideology’s dominant mode of functioning is cynical . . . ‘they know very well what they are doing, but still, they are doing it.’<sup>34</sup>” It is through this continual doing—this “using,” this externalization of our beliefs onto objects that act for us—that ideology operates.

Software produces users, and the term *user*, resonating with “drug user,” discloses every programmer’s dream: to create an addictive product.<sup>35</sup> Users are produced by benign software interactions, from reassuring sounds that signify that a file has been saved to folder names such as “my documents” that stress personal computer ownership. Computer programs shamelessly use shifters, pronouns like “my” and “you,” that address you, and everyone else, as a subject. As Margaret Morse has asserted, these shifters are key to post-televisual interactivity, to the emergence of cyberculture (versus information), and to the delegation of “soft” social control to machines.<sup>36</sup> Software makes you read; it offers you more relationships and ever-more visuals. Software provokes readings that go beyond the reading of letters toward the nonliterary and archaic practices of guessing, interpreting, counting, and repeating. If you believe that your communications are private, it is because software corporations, as they relentlessly code and circulate you, tell you that you are behind, and not

---

33. See Natalie Jeremijenko, “Dialogue with a Monologue: Voice Chips and the Products of Abstract Speech,” <<http://cat.nyu.edu/natalie/VoiceChips.pdf>> (accessed September 13, 2002).

34. Slavoj Žižek, *The Sublime Object of Ideology* (London: Verso, 1989), 29.

35. For more on addiction and technology, see Avital Ronell, *Crack Wars: Literature, Addiction, Mania* (Lincoln: University of Nebraska Press, 1992); and Ann Weinstone, “Welcome to the Pharmacy: Addiction, Transcendence, and Virtual Reality,” *diacritics* 27, no. 3 (1997): 77–89.

36. “Chapter One: Virtualities” in Margaret Morse, *Virtualities: Television, Media Art, and Cyberculture* (Bloomington: Indiana University Press, 1998), 3–35.

---

in front of, the window.<sup>37</sup> Even when “lurking,” you constantly send information. It is impossible to resist subjectivity by doing nothing (as Baudrillard once argued and encouraged) if we jack in or are jacked in.

Software and ideology seem to fit each other perfectly because both try to map the material effects of the immaterial and posit the immaterial through visible cues. Software’s uncanny paralleling of ideology not only reveals its programmers’ dreams but also its struggle to emerge as a commodity, as a value. When software programs first emerged, it was unclear that something so insubstantial should be bought or sold. Software’s popularity as a heuristic, coupled with the multibillion dollar industry it supports, testifies to its success.<sup>38</sup> As Moglen notes, “The division between hardware and software . . . has become a new way to express the conflict between ideas of determinism and free will, nature and nurture, or genes and culture. Our ‘hardware,’ genetically wired, is our nature, and determines us. Our nurture is ‘software,’ establishes our cultural programming, which is our comparative freedom,” and thus conversely our exposure to control.<sup>39</sup> Although nature as hardware seems to treat nature as inflexible (genetically wired), and therefore lends hardware and networking protocols an undesired stability and reality, it also makes nature an object of choice, as easily manipulated and upgraded as hardware. This parallel between software and ideology, however, flattens ideology to its similarities to software, and elides the difference between software as code and software as executed program. More important, it suppresses the question of power and struggle, central to any serious study of ideology. Insisting on software as ideology par excellence excellently drains ideology of meaning and reduces it to acts of programming, which can be reprogrammed by

---

37. For more on windows and political theory, see Keenan, “Windows.”

38. Again, Lev Manovich’s groundbreaking, insightful, and important work, *The Language of New Media*, in its move toward computer science terminology and its call for a move from media theory to software theory (48), perpetuates the dominance of software.

39. Eben Moglen, “Anarchism Triumphant: Free Software and the Death of Copyright,” *First Monday* 4, no. 8 (August 2, 1999), <[http://firstmonday.org/issues/issue4\\_8/moglen/index.html](http://firstmonday.org/issues/issue4_8/moglen/index.html)> (accessed May 1, 2004).

---



individuals-cum-hackers (this is the libertarian message of *The Matrix*). As well, this analysis reveals the many slippages between software, interface, and extramedial representation that must happen in order for software to gain such power.

Thus, against the recent trends in new media studies to view new media as the coming together of computation and media, and to downplay the significance of utopian and dystopian imaginings of cyberspace, this book insists on the importance of extramedial representation, for the Internet (as cyberspace) existed within the public's imagination before it became a regular public practice.<sup>40</sup> The Internet was sold as “theory come true,” as the future in the present arrived as expected. During the 1990s, inflated promises, usually accompanied by knowing disappointment, sold the Internet. Much scholarly work, for instance, claimed that electronic texts literalized a theoretical ideal. Influential early work on hypertext argued that it epitomized Roland Barthes's writerly text; almost every major museum claimed and still claims that its Web site is André Malraux's museum without walls. Rhizome.org is/was one of the most influential net art sites, and Critical Art Ensemble, among many others, maintains that the Internet is rhizomic (the Internet has resuscitated Gilles Deleuze and Felix Guattari within North American theory and art circles: doubtless we are all bodies without organs). Early analyses of MOOs and MUDs argued that cybersex cemented Foucault's claim that sexuality is becoming discursive and every angst-ridden boy passing as the girl of

---

40. The disconnect between literary and filmic representations of high-speed telecommunications networks preceding the mass adoption of the Internet and the Internet as we now know it is stark, and many an analysis has foundered by conflating the two. Still, dismissing these influential representations of the future in order to concentrate on the present, as Manovich does in *The Language of New Media*, can also make us founder. Manovich's insistence on the present perpetuates a new rationalism (intensified and sanctified by the dot-bombs), which dismisses and is embarrassed by utopian rhetoric and early Net criticism. To its credit, *The Language of New Media* has moved theory away from virtual reality and William Gibson's cyberspace to the Internet and current computer art practices. Yet Manovich's critique begs the question, Why did so many theoretical and popular speculations on new media erase the difference between the present and the future?

---

your dreams proved that gender is performative.<sup>41</sup> Popular analyses portrayed the Internet as finally solving the problems of X by fulfilling X's promise. As I argue in chapter 3, almost every television commercial advertising the Internet in the mid- to late 1990s alleged that it substantiated (finally) a marketplace of ideas by eradicating all physical markers of difference. Accordingly, this erasure eradicated the discrimination that supposedly *stemmed from* these differences. Al Gore declared that the Internet was a revitalized Greek agora. Bill Gates claimed that the Internet was a space for "friction-free capitalism." The Internet was a global village, albeit a happier one than McLuhan's. Even to call the Internet cyberspace was to assert that it turned William Gibson's fiction into fact.

Through claims that could not be fulfilled and laws that could not be considered constitutional, the Internet has emerged as a, if not *the*, new medium (the ~~mass~~ medium, which, because of its flexibility and variability put the term "mass" *sousrature*). These "false" claims did not simply mistake or propagate propaganda for reality; they affected Internet development and ideology, and these "virtualities" were (and still are) surprisingly resilient in the face of contradictory experiences. The same corporations selling the Internet as empowering sponsored debates on the digital divide; the lack of dot-com profitability did not affect belief in the new economy. The dot-coms turned into dot-bombs through a "fact," their unprofitability, that had always been known, and this fact challenges the idea that better accountability ensures better actions, that all we need is better information, more transparency. Indeed, as I discuss in detail in chapter 2, the notion that better information means better knowledge, which in turn means better action, founded and foiled the dream of the Internet as the ideal democratic public sphere.

The Internet, this book stresses, emerged as a medium (to end all mass media) through a particular stage of forces: the U.S. government's

---

41. For examples, see George Landow, *Hypertext: The Convergence of Contemporary Critical Theory and Technology* (Baltimore, MD: Johns Hopkins University Press, 1992); The Smithsonian without Walls <<http://www.sliedu/revealingthings/>> (accessed May 1, 2004); Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet* (New York: Simon and Schuster, 1995), and *Women and Performance* 17, <<http://www.echonyc.com/~women/Issue17>> (accessed June 8, 1999).

long-standing support of the Internet as a military and research network, and its decision in 1994 to privatize the backbone; the concurrent imagined and real expansion of technologies such as virtual reality (VR); the conflation of the Internet with cyberspace; a thriving personal computer and software industry, which was able to slash prices through outsourcing to Asia and Mexico; interest by various media companies and telecommunications companies in merging and expanding their markets (made possible through the Telecommunications Act of 1996); technological advances that made the Internet more image friendly (Web, image-oriented browsers); and extreme coverage in other mass media. All these forces, combined with these theory-come-true moments, turned a network cobbled together from remnants of military and educational networks into an electronic marketplace, a library, an “information super-highway,” a freedom frontier. Through this combination, technology—seemingly forever condemned after the nuclear age—became good once more. Technology became once again the solution to political problems.

*Control and Freedom: Power and Paranoia in the Age of Fiber Optics* thus interrogates these forces and these theory-come-true moments not merely to debunk them as fraudulent (simply debunking them is as problematic as simply promoting them) but rather to understand their effects and the practices they engender. It investigates these moments in order to understand the linking of freedom and democracy to control, and the justification of this linking through technologically determinist explanations. This is not to say that technology has no force—its structures and language have a profound effect on our world and us. This is to say instead that technological solutions alone or in the main cannot solve political problems, and the costs of such attempts are too high: not only do such solutions fail but their implementation also generalizes paranoia.

### **Fiber-Optic Networks**

Even though technology is not a simple cause, examining its structures and its emergence closely can help us understand our current situation, which is why this book concentrates on and takes inspiration from fiber-optic networks. Theoretically, fiber-optic networks work the fundamental paradox of light. In them, light is both wave and particle: lasers emit particle-like light, whereas the glass transports wavelike

---

light.<sup>42</sup> Fiber-optic networks thus represent the theoretical necessity of using, rather than resolving, paradoxes. Fiber-optic networks also work the divide between physical and virtual locations. They physically span the globe, buried within oceans or spanning office buildings' ceilings, while at the same time carrying the light necessary for these other spaces. Unlike "information," fiber optics emphasize the physical necessity of location and the explosion of virtual locations. Moreover, as Neal Stephenson argues in his "hacker tourist" quest to track the laying of the longest fiber-optic cable in 1997, fiber-optic cables reconfigure our understanding of the "real" world. Stephenson sees cable laying as an attempt to turn Mother Earth into a huge motherboard.<sup>43</sup> Fiber-optic networks also engage the infamous last-mile problem. The speed of the last mile basically determines the speed of the connection. The local and the global are not independent; speed depends on traffic, noise, and previous wiring.

The age of fiber optics delineates a specific time range and corporate phenomenon. Videophone and dotcom hype drove the deployment of fiber optics. Put into experimental use in the 1970s, fiber optics transformed the long-distance telecommunications industry. MCI entered the long-distance market by investing in single-mode fiber-optic cables, while AT&T was still experimenting with multimode cable.<sup>44</sup> At first, the hopes for the videophone drove the development of broadband, and the great expectations surrounding high-bandwidth real-time applications (expectations propagated by articles such as Stephenson's) seemed to turn bust to boom. The Internet instigated the frenetic laying of fiber-optic cable in the mid- to late 1990s. Much of this cable remains unused, however, and this "dark fiber," which Geert Lovink takes up so eloquently in his book of the same title, combined with vacant fiber-optic factories in North Carolina, reminds us of fiber optics' place within the larger economic system.

---

42. For more on fiber optics, see Palais, *Fiber Optic Communications*.

43. Neal Stephenson, "Mother Earth Mother Board," *Wired* 4, no. 12, <<http://www.wired.com/4.12/ffglass.html>> (accessed January 1, 1999).

44. For more on the role of fiber optics in the deregulation of the telecommunications industry, see Jeff Hecht, "Three Generations in Five Years (1975–1983)," in *City of Light*, 176–200.

---

The age of fiber optics is quickly being displaced by wireless technologies (which also preceded it). Wireless technologies open up the possibility of touch: of being constantly caressed or bombarded by the signals around us—signals that only some connectors can translate into a signal. Wireless technology’s dominance in the South, where infrastructure costs are high, is also a result of geopolitics. Viewed by some as a case of technological “leapfrogging” (those poorer countries avoid the mistakes of more advanced countries by moving immediately toward more advanced technologies), this phenomenon leaves its frogs more vulnerable to both the effects of nuclear war and surveillance. Fiber optics replaced copper in key systems not only because of their speed but also because of their insensitivity to electromagnetic pulse (fiber-optic cables do not radiate energy). Because fiber-optic cables are also difficult to tap mechanically, and because they are usually buried, they offer a more secure and reliable form of communication than wireless or copper; the United States and the United Kingdom bombed Iraq in February 2001 when it tried to complete a Chinese-engineered fiber-optic network.

The other chapters of this book analyze in more detail the relation between fiber-optic networks and control-freedom. Unlike Foucault’s investigation, this work focuses on the impact of sexual “freedom” rather than the historical processes that led us to the ironic belief that sexuality—with its attendant call to “tell everything”—could liberate us. The following chapters bring together what we can and cannot see, what is on, behind, and beyond the screen.

The Interlude draws out the uncanny similarities between Daniel Paul Schreber’s paranoid hallucinations of 1903 and the high-speed networks of 2003. Schreber’s system—a communications network, which confuses “pictured men” with real ones and consists of light rays and a “writing down system” that records everything—parallels our current fiber optic technologies. Rather than resting with this parallel, the interlude argues that this literalization and generalization of paranoia leads elsewhere. If Schreber’s paranoia, as Santner argues in *My Own Private Germany: Daniel Paul Schreber’s Secret History of Modernity*, arose from his realization that power is rotten at its core, that the disciplines sustain the liberties, ours blinds us to the transformation of discipline and liberty into control and freedom.

---

Chapter 1, “Why Cyberspace?” addresses the discontinuities between the Internet as Transmission Control Protocol/Internet Protocol (TCP/IP), the Internet as popularly conceived of as “cyberspace,” and William Gibson’s fictional “cyberspace.” Arguing that the Internet has little to nothing in common with cybernetics or Gibson’s fiction and that it is not spatial, this chapter contends that cyberspace’s power stems from the ways it plays with notions of place and space. Cyberspace maps the Internet as a perfect frontier, as a heterotopia. Cyberspace has also enabled certain critical thinkers to theorize users as *flâneurs*. In order to operate, however, the Internet turns every spectator into a spectacle: users are more like gawkers—viewers who become spectacles through their actions—rather than *flâneurs*. Users are used as they use. Through an analysis of TCP/IP, this chapter argues that the public/private binary has been supplanted by open/closed. The increasing privatization of space and networks is responsible for this supplanting and poses the most significant challenge to liberal democracy today. More positively, this chapter argues that the Internet also establishes “touch” between users, and that this touch and our vulnerabilities lay the foundation for democratic action. This democratic potential, however, is placed constantly at risk through the conflation of control with freedom.

Chapter 2, “Screening Pornography,” analyzes the “Great Internet Sex Panic of 1995,” the U.S. Federal and Supreme Court decisions on the Communications Decency Act, and online pornography. It contends that the “discovery” of online pornography and the government’s attempts to regulate it led to the dot-com craze of the late 1990s. Through cyberporn, the Internet became a marketplace (of ideas and commodities) in which “bad” contact stemmed from “bad” content rather than the Internet’s context/structure. Through cyberporn, the pedophile and the computer-savvy child became hypervisible figures for anxiety over the jacked-in computer’s breaching of the home. Electronic contact, however, cannot be divided into the “safe” and the “dangerous” based on content because the risk of exposure underlies all electronic exchanges. The conflict between Web page content and form, especially apparent within pornographic Web sites, exposes the fact that Hypertext Markup Language (HTML), HTTP, and javascripts—and not user mouse clicks—predominantly control interactivity. Drawing on the work of Claude Lefort and Thomas Keenan, this chapter argues that the Internet’s demo-

---

cratic potential actually lies in these risky (nonvisible) encounters between self and other, where neither of these terms is necessarily human.

Chapter 3, “Scenes of Empowerment,” asserts that in order to sell the Internet as a more democratic or “free” space, promoters conflated technological and racial empowerment. Analyzing MCI’s “Anthem” commercial and United Nations documents on the digital divide, chapter 3 argues that a logic of “passing” lies at the heart of this conflation. The Internet, rather than enabling anonymity, supposedly allows users to pass as the fictional whole and complete subject of the bourgeois public sphere. This narrative of passing threatens to render invisible the practices of the very people of color from whom the desire to be free stems, and to transform the desire to be free from discrimination into the desire to be free from these very bodies. It has also led paradoxically to race’s emergence as a pornographic category—one passes as the other by consuming its objects of desire. This chapter ends by considering work by the digital collective Mongrel, which refuses to commodify or erase race. The collective’s work questions the effectiveness and desirability of passing, and pushes the democratic potential of the Internet.

Chapter 4, “Orienting the Future,” contends that U.S. and Japanese cyberpunk make electronic spaces comprehensible and pleasurable through the Orientalizing—the exoticizing and eroticizing—of others and other spaces. Through close readings of William Gibson’s *Neuromancer* and Mamoru Oshii’s *Ghost in the Shell*, chapter 4 insists that the disembodied “user” construct relies on another disembodiment—namely, the reduction of the other to data. Cyberpunk’s global vision—its force as a cognitive map—stems from its conflation of racial otherness with localness. This chapter does not simply dismiss cyberspace and electronic communications as inherently Orientalist but rather investigates the ways in which narratives of and on cyberspace seek to manage and engage interactivity, for high-tech Orientalism is not simply a mode of domination but a way of dealing with—of enjoying—perceived vulnerability.

Chapter 5, “Control and Freedom,” concludes the book by clarifying control-freedom and linking it to the rise of a generalized paranoia. It revisits the commercials addressed in chapter 3 in order to expose the paranoia driving them, and then moves to a closer analysis of freedom-control through readings of face-recognition technology and Webcams. Against the current conflation of freedom with safety, chapter 5 agrees

---

with Jean-Luc Nancy that freedom is something that cannot be controlled, that cannot be reduced to the free movement of a commodity within a marketplace. To do so is to destroy the very freedom one claims to be protecting. Rather than simply agreeing with Nancy, however, this chapter argues that his philosophical notion of freedom works by making oppression metaphoric. Lastly, it contends that the changing role of race exemplifies our experience of control-freedom as sexuality.

*Control and Freedom: Power and Paranoia in the Age of Fiber Optics* does not merely criticize the Internet, or users' freedom. To claim that users are an effect of software is not to claim that users, through their actions, have no effect. Everyone uses: some use as they are used by fiber-optic networks; some have no access to them and yet are still affected by them. The fact that using makes us vulnerable does not condemn the Internet, for what form of agency does not require risk? The problem lies not with our vulnerability but with the blind belief in and desire for invulnerability, for this belief and desire blind us to the ways in which we too are implicated, to the ways in which technology increasingly seems to leave no outsides. From our position of vulnerability, we must seize a freedom that always moves beyond our control, that carries with it no guarantees but rather constantly engenders decisions to be made and actions to be performed.

---