When the Panopticon Goes Online:
Charting the Geography of Power, Control and Surveillance in Cyberspace
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"Power is everywhere; not because it embraces everything, but because it comes from everywhere."
--Michel Foucault

Introduction

Spaces and places are constructed by human beings. They are the always in-proces configuration of a complex intersection of human social relations. Power, as poststructural s theorist Michel Foucault has argued so brilliantly, is always implicated in those relations. I permeates the larger social institutions that form the foundation of human society. It encompasses the social and physical landscapes into which all of us are cast upon birth. A penetrates every aspect of our everyday lives. It does not flow in a single direction. It flows down, across and through human social relations. It is, as Foucault states, everywhere. That power is everywhere does not mean that it is singular. Power both coerces, destroys a dominates *and* produces, creates and enables. It is not homogeneous, but complex and heterogeneous, manifesting itself in myriad ways and forms across all levels of the human s hierarchy.

One simply cannot adequately or meaningfully engage the social construction of hur spaces and places then, without also asking questions such as, Where is power? How does manifest itself? What role does it play in shaping and creating space and place? What kind power does a space or place enable, and in what ways? How and in what ways are space a place connected to the larger human social relations which give rise to them? The following analysis of power, control and surveillance in cyber*space* grapples with these important questions. Its primary focus is on the Internet, which arguably constitutes the fastest growi most critical component of this burgeoning space. Its aim is not to trumpet the many wond

this fascinating new technology, but instead to ground the emergence of the Internet in histo
cultural, social, economic and political relations. That these relations span radically dispara
power situations is as clear as it is potentially troubling. Thus, for example, while innumera
trees have been sacrificed to analyses of cyberspace and the Internet, estimates are that abo
million people -- or less than three percent of the world's population -- are online. Yet it is
arguably the most powerful and privileged who are surfing the Net, the vast majority of the
Americans and Europeans.

The already powerful have to a large extent shaped the kind of space that cyberspac
become. Ten of the thirteen root servers that form the backbone of the Internet are in the U
States. And it is an American NGO formed as a result of a unilateral decision by the United
States Department of Commerce, the Internet Corporation for Naming and Numbering (ICA
that assigns the domain names which form such an integral part of the architecture of the
contemporary Net.[1] A 1998 report issued by the European Parliament alleges that a consort
of nations (all of them former British colonies) has created a surveillance technology referre
by the code name "Echelon" with the capacity to surveil virtually every cyberspatial transa
and communication in the world. And the UK last year announced that it was building a $3
million Internet Surveillance Center capable of snooping in on its citizens Internet surfing ar
reading their electronic mail. Power and control do not confine themselves to the macro soci
and institutional level. Individual employers in the United States are increasingly monitoring
their workers' web surfing and reading their e-mail. Parents of young children are now going
online to watch over child-care providers, and parents of adolescents can now log on to the
to get real-time updates on their children's attendance records and grade reports. Internet Se
Providers (ISPs), one of the most critically situated nodes on the Internet, keep track of use
actions online by way of web server logs -- which can then be subpoened by law enforcmer

ISPs have blocked access to certain sites on the World Wide Web and they have pulled the
on sites hosted on their servers after receiving anonymous threats levied against their econo
interests.

The many ways in which the cyberspatial enables widespread, all-encompassing an
time-collapsing surveillance is perhaps one of the most significant and important means wh
a certain kind of power is structuring cyberspace. This is the primary, though not sole, focu
this analysis. Ultimately, I do not seek to come to a final, definitive conclusion regarding ho
power and control are manifesting themselves via surveillance in cyberspace. In other word
aim is not to declare that cyberspace *is* this. But my analysis does lean toward a somewhat
dystopian (though not entirely so) vision of the future of cyberspace. That it does so is larg
reflection of the analytical power of darker visions of this space delivered by a wide array o
cultural geographic, Marxist, poststructuralist and cybercultural theorists. The ever expandi
power and penetration of capitalism and market logic, the blurring of the boundaries betwee
public and private, a larger regime of surveillance that now has people watching us while we
shop online so that they can know what to sell us next time, the vast array of cyberspatial d
that we now generate on an individual and collective basis, all of these are part of the wider
social forces and trends that are shaping cyberspace.

This paper is divided into five sections, all of which address different dimensions ar
aspects of power, control and surveillance in cyberspace. In the first section, I attempt to
conceptualize cyberspace by way of historical analysis and by attempting to engage metaph
space, place and landscape as they apply (or do not) to cyberspace. In the second section, I
an overview of what I consider to be three major discourses on cyberspace: the utopian, the
dystopian, and the ambivalent. In section three, I address more directly than in the previous
sections, questions of power and control in cyberspace, particularly as they relate to what I

scholar Lawrence Lessig refers to as its underlying architectural "code" and to its colonizati corporate capital. In section four, I provide specific examples of cyberspatial surveillance a discuss them within the context of Foucault's concept of the Panopticon. Finally, in the concluding section I discuss some of the implications of the current state of surveillance an hierarchy of power within contemporary cyberspace.

Cyberspace, the Internet, and the WWW

Most literature on cyberspace traces the term back to William Gibson's 1984 "cyber novel *Neuromancer*. For Gibson, cyberspace is at its most basic level "virtual dataspace." Gibson coined the term, "cyberspace" has been taken up and deployed in a wide variety of For example, in the book *The Governance of Cyberspace: Politics, Technology and Global Restructuring*, editor Brian Loader describes cyberspace as a "collection of different multim technologies and networks" and as "a computer-generated public domain which has no terri boundaries or physical attributes and is in perpetual use".[2] Editor David Bell argues for a br understanding of cyberspace in the introduction *to The Cybercultures Reader*.

> We take a purposely broad definition of what cyberspace means. We want to think the (overlapping but distinct) domains of digital communications and information technologies -- the Internet, the world wide web, email; plus all the subframes within these (bulletin boards or BBS, chat rooms, multi-user domains (MUDs)/dungeons, e alongside a host of related technological systems, including virtual reality, digital imaging systems, new biomedical technologies, artificial life and interactive digital entertainment systems.[3]

Thus cyberspace encompasses the Internet and the World Wide Web (WWW) but includes as well a variety of information technologies ranging from virtual reality goggles to computer software and hardware to telecommunications technologies such as voice mail an caller ID. Though the tendency is often to associate cyberspace with the new, many histori analyses chart its beginnings back to the invention of the telegraph in the late 1800s. Accord to Vincent Mosco, cyberspace is simply "a deepening and extension of those shared

communication spaces created over the history of communication technology and acceleratii with the telegraph, telephone, and broadcast technologies".[4] The Internet consists of a vast interconnected network of computers, servers, phone lines, cable lines, and routers. E-mail, bulletin boards, newsgroups, chat rooms, and web sites are among the electronic "raw mate that comprise the Internet. The world wide web (WWW) here is used to refer to an intricate complex maze of *hyptextually* linked documents, images, videos, sound clips, databases, etc Thus the WWW is conceived of as being nested within the Internet, itself nested within the broader category of cyberspace. However these categories might overlap and bleed into one another it is nevertheless important to attempt to establish approximate definitions at least because doing so helps to underscore the complex, multi-dimensional, fluid and admittedly opaque nature of cyberspace. In order to more meaningfully engage questions of power, cor and surveillance as they relate to cyberspace, I now turn to a brief historical analysis of the Internet and the WWW, which together form the primary, though not exclusive, focus of thi analysis.

A Brief History of the Internet and the Web

John Leslie King et al. provide a comprehensive history of the Internet and the WW their fascinating essay "The Rise and Fall of Netville: The Saga of a Cyberspace Constructi Boomtown in the Great Divide."[5] The essay traces changes in the character and form of wh they call "Netville" -- an electronic community created via a complex dynamic between hun social and technological realms -- from its early days as a joint research project between U.S academics and the U.S. military to its transformation into a space and set of places increasi dominated by commercial production, consumption and distribution. According to King et a the history of the Internet begins well before the rise of the so-called ARPANET (Advance Research Projects Agency Network) of the 1970s with the first remote use of a computer in

1940. By the 1960s, the U.S. military had constructed the first real-time computer network, Semi-Automatic Ground Environment (SAGE) air defense system. At around the same time corporations, including American Airlines and IBM, began using networked computers, Electronic mail appeared during the same time period. King et al. state that 1972 was "prob marked the first time an ARPANET e-mail was sent. The ARPANET, which consisted of a union between the Department of Defense (DOD) and multiple academic research universi and labs, was constructed during the late 1960s and early 1970s. Its aim was the creation of decentralized command/control network capable of surviving a nuclear attack. Thus a partic set of power interests and relations underlie the formation of the Internet. To make this observation is not to say that the U.S. military industrial complex single-handedly controls contemporary Net. It does not. In fact it also is no small irony that today's Internet now pose the specter of cyber-terrorism, a potential security threat to the very military (university) industrial complex that created it. These larger institutions may no longer hold a monopoly o the future of the Net. But this does not mean they do not continue to hold considerable pow vis-à-vis its future shape. By 1990 the union between the DOD and academe had achieved military's main aim: the construction of a fully capable decentralized "packet-switching" network. In 1992, the military left the community it had helped build. Academic institutions remained as its chief architect and users. But "Netville" did not remain theirs for long. Hype Markup Language (HTML) was introduced in the early 1990s and by 1994, Marc Andreess creator of the first WWW browser, Xmosiac, had left the U.S. National Center for Supercomputer Applications to form Mosaic Communications Corporation, later named Netscape. By 1994 with the official release of Netscape 2.0 the Internet the WWW had gon fully commercial.[6]

Examining the history behind the emergence of the Internet underscores the critical r that various social, cultural and political forces play in the creation of supposedly purely technological spaces. Historical analysis also yields important insight into the state of the contemporary Internet and its structures of power, control and surveillance. Among the lega of ARPANET, point out King et al. are the basic decentralized architecture of the Internet a as the connection of "heterogeneous elements" through standards such as Transfer Control Protocol (TCP), Internet Protocol (IP) and Domain Name Service (DNS).[7]

The kind of standardization that enabled connection between heterogeneous technological components would not have been possible without the unique, self-contained cooperation that occurred between various academic institutions and the military, note King Early "Netville" was deliberately shielded from "the vagaries of individualized market competition". And in the end it was given "a chance to construct its own reality -- an almos unheard of opportunity in the market/regulatory regime".[8] In other words, the power dynam the market did not play a significant role in the original formation of the Internet. This is no longer true. In fact King et al. conclude that the "intellectual curiosity," "informal meritocra and spirit of "egalitarianism" that characterized the early days of the Internet are fast yieldi an Internet dominated by capitalist competition and market logic. Although King et al. expr perhaps too much nostalgia for a seemingly idealized "Netville" of the past, their focus on t historical emergence of a particular kind of Internet and the ways in which it contrasts shar with the contemporary Internet draws attention to the fact that it is a malleable human socia construct. Whereas a specific set of powerful social actors situated in particular ways politi economically and culturally constructed a certain kind of Internet, a different group of powe actors have now gained control and are clearly fashioning a radically different Internet. This not to say that the legacy of the previous set of actors has been entirely erased. Clearly it ha

Nor is it to say that their legacy or the one being created now are somehow simple or one-dimensional. Multiple players with often conflicting interests and goals construct the space which we live and interact. Cyberspace is one of those spaces.

Cyberspace and Metaphors of Space, Place, and Landscape

Places, argues Doreen Massey, in "A Place Called Home," are always open to contestation.[9] They are relational. They are characterized by processes of change and intera In short, they are always in the process of being produced. Cyberspace is characterized by contestation among a wide range of sometimes disparate and competing actors. Among ther civil liberties and privacy advocates, law enforcement, government, political activists, consu groups, marketers, corporations, hackers, and anti-porn crusaders. Cyberspace exists withir because of, a complex network of human social relations. Always in process, it is character by myriad manifestations of interaction. It is, in the end, continually being produced and reproduced by its many social actors. It might be said then, that cyberspace is a place in ma the ways that Massey conceives of place, or really, that it is many places all of them alway process. The Internet, as part of cyberspace, can be, I believe, conceived of in similar fashic Oliver Froehling in his essay "Internauts and Guerrilleros: The Zapatista Rebellion in Chiap Mexico and its Extension Into Cyberspace," a case study analyzing the role the Internet has to play in political activism, asserts that, "More than anything, (the Internet) is a site of str and can be used by social formations for their purposes as much as it can be used to transfe money, read newspapers, sell products or look at pornography. In and by itself, the Internet useful. Its utility lies in its interconnection with activities in other spaces, in its ability to facilitate different and further reaching social relations."[10]

Cyberspace acts as a critical catalyst for what multiple scholars from a variety of disciplines have contended is a fundamental and rapidly changing "social organization of sp

This (post)modern reorganization of space, characterized by what Harvey has called "time-compression"[11] and what Massey and Jess describe as the "stretching out" of social relation in turn, "disrupted our existing forms of, and concepts of place."[12] In fact cyberspace has become a critical contemporary "activity space" – defined by Massey as "the spatial netwo links and activities, of spatial connections and of locations, within which a particular agent operates"[13] -- for powerful social, cultural, political and economic elites the world over. Its r ascension as a pivotal space of social control underscores the ways in which material and s processes are radically changing the ways in which we conceive of space and place as well relationship between them.

In *Place and Placelessness*, Relph attempts to draw a distinction between space and place, while at the same time arguing that the two are inextricably bound. "Space," he write amorphous and intangible and not an entity that can be directly described and analysed. Ye however we feel or know or explain space, there is nearly always some associated sense or concept of place. In general it seems that space provides the context for places but derives meaning from particular places."[14] Cyberspace differs profoundly from more traditional mat spaces inasmuch as it does not embody a traditional physicality of the sort many other spac Yet it is arguably comprised by, and draws meaning from particular places. According to R "various forms of space lie within a continuum that has direct experience at one extreme and abstract thought at the other extreme."[15] Perhaps then it might be useful to conceive of a continuum of space to place in cyberspace with generalized cyberspace comprising a mostl abstract and amorphous although not entirely "immaterial" space[16] at one end, and the varic electronic spaces of the Internet and the WWW – web pages, chat rooms, newsgroups, and bulletin boards, etc. -- moving us closer to place at the other. Such places do not enable immediate physical interaction (though they can lead to such interaction). But they are

nevertheless experienced by real people in real ways. More importantly they are constructe maintained by real social beings with real investments in what they are producing. "The Internet," contends Adam Newey in his essay "Freedom of Expression: Censorship in Priva Hands, "is as much a part of the real world as I am, or my local community is. Computer-mediated communities, after all, are real social entities."[17] And Jed Kolko, writing in the boo *The Internet Upheaval: Raising Questions, Seeking Answers in Communications Policy,* underscores the critical interplay between the real and virtual worlds arguing that it is impos to separate the two. "Where is the Internet? It is everywhere . . . but it is also nowhere . . . together, its apparent ubiquity and invisibility give its users a sense of placelessness, of free from the traditional constraints of physical distance. But this placelessness is an illusion. T Internet is where its users are."[18]

Mosco reminds us that geography need not, nor should not limit itself to the study o physical. "Place," he writes, "is also symbolic, social, and (a) cultural construction, a representation of our imagination of space, as well as of our physical relationship to it."[19] Massey and Jess too stress the social dimensions of place, describing it as "the location of particular sets of intersecting social relations, intersecting activity spaces, both local ones a those that stretch more widely, even internationally."[20] Mosco reminds us as well of the rea material consequences and effects of the construction of a cyberspatial realm. Cyberspace, contends, is not just about "immaterial flows of placeless power. Rather, we are experiencin remapping of the global political economy by the combination of resources and valuable flo both physical geography and cyberspace."[21] This remapping arguably constitutes both an expression of and a manifestation of larger real-space social relations of production and rela of power. Connectivity, says Mosco, doesn't mean that distance is dying or that (traditiona geography is at an end. "Rather, the architecture of connectivity accentuates the importance

certain nodes in its global networks such as the Silicon Alley/Midtown Manhattan nexus ar Kuala Lumpur/Cyberjaya/Putrajay nexus in Malaysia. Additionally, it offers powerful tools deepen and extend existing practices that tighten certain power relations."[22]

Cyberspace then might be conceived of as both a site for and an outcome of a shiftin of human social relations and practices – with cyberspatial *and* real-world material consequences. Those relations and practices Pred reminds us are always implicated in powe relations. Indeed Pred cites the following quote from Foucault to start his book *Place, Pract and Structure*: "A society without power relations can only be an abstraction." Like Masse Pred conceives of place as always in the process of becoming. Place, additionally, is an historically contingent process. Finally, Pred contends that "the structuring of space is inseparable from the process of social structuring."[23] If Pred is right, then we can look to spa structure for clues about the larger social order and the power relations which it expresses, underlies, and constructs. Pred's argument about space is critical to understanding relations power as they manifest themselves in cyberspace for a number of reasons. First, as soon as assumes the position that the structuring of space is inseparable from a larger process of so structuration claims that cyberspace or the Internet constitute fundamentally "new" spaces will inspire a completely different social order become deeply suspect. Second, such an argument acknowledges – and this is a decidedly Foucauldian observation -- that space is s by power relations and furthermore that space in turn shapes, controls and potentially emp us in ways of which we may or may not be conscious.

Although the metaphor of landscape is problematic vis-à-vis cyberspace inasmuch a in contrast to space and place, seemingly implies a physical dimension rooted in a particula of "material" connection to the natural world, I believe that Don Mitchell in *The Lie of the L Migrant Workers and the California Landscape*[24] yields potentially critical insight into que

of power, control and surveillance as they relate to cyberspace. Among the crucial points t

Mitchell makes:

1) There exists a potentially insidious relationship between ambiguity and power. is, ambiguity can often serve to at once obscure and naturalize the operation of p
2) One simply cannot adequately engage landscape without asking the question: W does the landscape look as it does and who made it look that way?
3) The question of capitalism and its relationship with, and impact on, the landsca must be analyzed.
4) The critical cultural geographer needs to focus on processes of (re)production, w ultimately form the foundation of human *social* existence.
5) Power and domination write themselves into the landscape and attempt to impo particular way of seeing, understanding, and experiencing a landscape.[25]

Harvey argues for a similar materialist foundation upon which to engage questions

of space and place in *The Conditon of Postmodernity*. "Neither time nor space can be assigr

objective meanings independently of material processes," he writes, adding "that it is only

through investigation of the latter that we can properly ground our concepts of the former."[

"The question of capitalism" is for Harvey, like Mitchell, absolutely fundamental to

understanding space as the both an outcome of and arena for human social relations. "In

capitalist society in particular, the intersecting command of money, time, and space forms a

substantial nexus of social power that we cannot afford to ignore," he writes.[27]

For Mitchell, power and labor are essential starting points for any meaningful analy

landscape:

> First, to the degree anything is made (including landscape, however defined), it is a process of labor, of work. Second, in human society, if there is work, there is social organization. Finally, the organization of work is (has been, will be) fraught with relations of power and conflict; the cooperative effort necessary to make anything – much less anything as complex as landscape -- is not at all natural but is socially constructed.[28]

I would argue that Mitchell's critical cultural and Marxist inspired analytical framework for

landscape can also be applied to analyses of space and place, including cyberspace and the

places which it encompasses. The Internet, for example, although certainly not material in t

same *visual* sense as a field of lettuce in the San Joaquin valley, nonetheless comprises a ce kind of materiality. Although users rarely see its technological and material infrastructure, tl Net is made up of real material goods -- computer chips, hard drives, memory modules, rou software, thousands of miles of cable and wire. All of these are produced and require "a pro of labor, of work."[29] It is perhaps not entirely unproblematic to do so but one could substitu word cyberspace for landscape in the following statements by Mitchell and be left with a powerful analytical approach whereby to engage the complex social relations of power that and continue to, structure cyberspace, the Internet and the WWW. According to Mitchell, "Landscape is . . . a unity of materiality and representation, constructed out of the contest between various social groups possessing varying amounts of social, economic, and politica power."[30] Additionally, for Mitchell "Landscape is always both a material form that results and structures social interaction, and an ideological representation dripping with power."[31] I an analysis and discussion of the many varied, competing and often contradictory "ideologi representations" or accounts of cyberspace that I now turn. Such a discussion is critical wit respect to questions of power, control and surveillance in cyberspace. For, as both Mitchel Harvey convincingly contend, representation does not simply constitute a reflection of soci interaction. "Ideological representations dripping with power" both shape how we come to conceive of and understand cyberspace as the outcome of social interaction (or fail to do so (in)form the social, technological, material and power structure of cyberspace itself. "Considerable power," writes Harvey, "goes to those who command the techniques of representation. If a picture or map is worth a thousand words, then power in the realms of representation may end up being as important as power over the materiality of spatial organization itself."[32]

Utopian, Dystopian and Ambivalent Discourses on Cyberspace

Three discourses arguably dominate literature about cyberspace: the utopian, the dystopian and the ambivalent. This is not to say that a single writer's work can be easily or characterized as utopian or dystopian. Much of the work on "the" nature of cyberspace refl both utopian and dystopian tendencies. Yet this does not mean that all "ideological representations" of cyberspace therefore fall into the category of the ambivalent. It is possil classify many textual representations as tending to reflect a rather more utopian than dysto discourse on cyberspace or vice versa. Writing that I characterize as reflecting a discourse o ambivalence often lies more toward the dystopian end of the continuum. However it does n entirely off of it into one-dimensional, apocalyptic despair. It is at the ambivalent end tendir rather more toward the dystopian than the utopian representation of cyberspace that I situa myself on the utopian-dystopian discursive continuum. I do so because writers who represe understand cyberspace as ambivalent ground their analysis in larger social relations of powe They aim to expose how, as Mitchell puts it, "power writes itself" into cyberspace, both symbolically and materially. They, like Pred, link the "structuring of [cyber]space to larger processes of "social structuring." And they, like Massey and Jess, recognize that people m places and (cyber)spaces and that power is always implicated in their construction. In shor ambivalent visions of cyberspace situate this ever more critical space within the real-world structures with which it is inextricably bound. They argue, for the most part, that "real-wor structures of power and control are replicating themselves in cyberspace. Many also conter the rapid expansion of cyberspace is creating the conditions for a radical intensification of t various means of surveillance which undergird and enable an ever-expanding structure of so domination and control.

Utopian Visions of Cyberspace

I divide utopian visions of cyberspace into three categories: the market libertarian (v
idealist and consumerist variations), the social democratic, and the technologically determin
The idealist market libertarian views cyberspace as the ultimate space for the marketplace o
ideas. She sees it as a space where freedom reigns supreme and each cyber-user picks and
chooses from a rich array of ideal and creative possibilities delivered magically by the mark
The consumerist market libertarian conceives of the Net in much the same way, but with a
on its ability to deliver a vast array of consumer goods.[33] The social democratic utopian visi
views cyberspace as radically facilitating the spread of democracy and political activism. Fi
the technological determinist contends that technology is leading us on a teleological trip to
utopia. With some qualifications, the technological determinist asserts that technology can s
any and all social problems, including ones that it may have played a significant role in creat
in the first place.

Questions of power and control, hierarchy, inequality and domination are mostly, if
wholly, absent from utopian visions of cyberspace. Furthermore, cyberspatial utopians, for
most part, fail to situate cyberspace within a wider nexus of social relations. Instead it is vie
as fundamentally "new" space where a brand new liberatory social order is developing. Perh
the best known marketplace of ideas proponent is John Perry Barlow. The following quote
the former Grateful Dead member and founder of the electronic libertarian watchdog group t
Electronic Frontier Foundation (EFF) captures the utopian leanings of the idealist market
libertarian: "Ideas are empowered -- indeed, enfranchised -- not by the willingness of publis
to print them," writes Barlow in an excerpt taken from an exchange on copyright law publis
at *The Atlantic Monthly's* web site, "but by their own credibility. Through an amplifying cas
of mouse clicks, they reproduce until they have reached sufficient mind-share to change
politics."[34] Examples of a consumerist market libertarian view of the Net abound. They are

particularly prevalent in advertising where various ad campaigns seek to illustrate the wond ways in which cyberspace connects us -- so that we can do our jobs better, more efficientl and/or so that we can buy more things more easily. A social democratic utopianism vis-à-vi cyberspace manifests itself in a variety of forms. It can be seen in the claims by left-wing radicals that their voice will now be heard (by whom, it is not clear) because of a newfound ability to publish to a worldwide audience. And it can be seen in claims such as that levied Christopher R. Kedzie of the Ford Foundation in Moscow that information "revolution" technologies were the key to bringing down "authoritarian communism" in the late 1980s. Electronic networks, says Kedzie, are individualized, decentralized, low-cost, and versatile multidirectional. Furthermore, he gushes, "These specific characteristics of electronic netwo are fundamental to communicative reciprocity and as such engender revolutionary prospects the spread of democracy."[35] A technological determinist utopianism often expresses itself i form of observations such as those delivered by author and Xerox PARC Information Cente Director Mark Stefik. The Net, writes Stefik, is "facilitating exploration" and increasingly g machines and devices "the capacity for intelligent action." Although Stefik expresses some reservations and qualifications -- as do many advocates of Net utopianism -- he views techn as embodying the potential to solve seemingly all human social ills.[36]

More dystopian discourses on cyberspace frequently fall into two categories: critica cultural critiques and Marxist critiques. Both seek to underscore the complex dynamics bet the social, cultural, economic and technological realms. And both vigorously confront and systematically deconstruct utopian claims of cyberspace as a free-floating environment characterized by total human emancipation. "Techno-evolutionism," writes Jody Berland i essay "Cultural Technologies and the 'Evolution' of Technological Cultures," a stinging criti of Net utopianism, "displaces alternate imaginings by positing the technological imperative

coming from outside ourselves, outside of human culture, through a self-generating evolutio progression rather than from the culpable logics of our own social system."[37] We get a simil even more biting critique of utopian discourses of cyberspace from Marxist media critic Ro McChesney. "It is when technological utopianism or determinism are combined with a view capitalism as benign and natural that we get a genuinely heady ideological brew," he observ an essay entitled "So Much for the Magic of Technology and the Free Market: The World V Web and the Corporate Media System."[38] Julian Stallabrass delivers a similar critique in "Empowering Technology: The Exploration of Cyberspace," noting that "networking alone insufficient peg on which to hang a visionary future in which all human relations are forever changed."[39]

However persuasive mostly dystopian views of cyberspace are, it is important not carried away with broad, sweeping statements about a monolithic, impenetrable, all-encompassing, humanity crushing cyberspatial hegemony. As Donna Haraway reminds us,

> Ambivalence towards the disrupted unities mediated by high-tech culture requires n sorting consciousness into categories of 'clear-sighted critique grounding a solid poli epistemology' versus 'manipulated false consciousness,' but subtle understanding of emerging pleasures, experiences, and powers with serious potential for changing the of the game.[40]

Stephan Graham, in "Geographies of Surveillant Simulation," writes that it is just as critical to fall into a technological determinism of a dystopian as opposed to a utopian kind. "We n to be wary of easy generalisation and deterministic readings of technological 'impacts', whe they be utopian or dystopian in character," he writes.[41] Graham advances a useful guide for analyzing the complexity of the cyberspatial realm. According to Graham, "virtual geograph has three main challenges:

1) To develop perspectives which can analyze how broad, interacting technological systems help reconfigure virtual and material geographies;
2) To balance notions of wide-scale, macro-level biases with analytical approaches accommodate the contingency of social action;

3) To maintain holistic perspectives that don't over privilege the 'social', economic, cultural "but rather allow the multidimensional nature of virtual geographies to b unpacked and explored."[42]

It is also critical for "virtual" geographers to ask questions such as that posed by Berland: "Supposedly we are on the brink of unprecedented and fundamental transformation. But wh changing what?"[43] To this question one might add: Who is changing what and how? To wha ends? And, What are some potential implications of those changes with respect to a larger structure of power and control? It is to these questions that we now turn. A discussion and analysis of Lawrence Lessig's insightful book *Code and Other Laws of Cyberspace* and an examination of a Marxist analysis of the current state of corporate media control of the WW by McChesney – which reflects exactly the kind of focus on the critical role of capitalism i shaping landscape, or in this case, space, that Mitchell suggests is so essential – are the ma vehicles whereby I seek to throw important light on these questions below.

Power and Control in Cyberspace

"Left to itself, cyberspace will become a perfect tool of control."
--Lawrence Lessig, Code and Other Laws of Cyberspace

Control not freedom is the future of the Internet unless fundamental regulatory chan are instituted contends Lessig in *Code and Other Laws of Cyberspace*.[44] Although it is not only structural architect of cyberspace, code, suggests Lessig – more so than law, social no and the market -- forms the most basic building material out of which this socially construct and contingent space is made and remade. If servers, computers and data transmission lines the bricks and mortar of cyberspace, code, according to Lessig, is its architect. Code determ where, how and in what ways cyberspace's bricks and mortar will direct users. It builds doo some places, but not others, puts a window here but not there, constructs a wider hallway h and a narrower one there. More significantly perhaps, code as architect of cyberspace not o

determines where doors and windows will be placed and how long and wide its hallways w
It determines for whom particular doors and windows will and will not open, who will and
not be permitted to traverse its wider or narrower hallways. Additionally, for Lessig code
determines under what terms the people who navigate and constitute the fundamentally soc
places of cyberspace will and will not be allowed to walk through doors, peer through winc
and move along hallways. Finally, according to Lessig, code as architect of cyberspace enab
and/or disables certain kinds of electronic surveillance by government *and* by private entitie
other words, code determines whether certain (or perhaps all) cyberspatial windows are to l
one-way or two-way, whether certain (or perhaps all) doors will or will not have "peep" ho
short, code for Lessig comprises "the '*built* environment' " of cyberspace.[45] That environme
not monolithic or homogenous. "Cyberspace is not *a* place; it is many places," writes Lessi
advancing a complex and dynamic notion of space rather like Massey's concept of place. "I
places don't have one nature; the places of cyberspace have many different 'natures'."[46]

According to Lessig, a complex and reciprocal relationship exists between what he t
four key modalities of regulatory constraint -- code, law, norms and the market. One is not
inherently more important than the others. However it is a commercially driven code that cl
holds the upper hand. That this is so – and Lessig makes a good case that it is indeed so --
profound implications for the future of cyberspace. Cyberspace's users – everyone from th
occasional e-mail user to the most die-hard techno-libertarian -- must beware powerful code
driven structural changes sweeping across the "intrinsically" free cosmos of the Internet wa
Lessig. Within the architecture of the *contemporary* Internet users are being systematically
monitored, watched, tracked and followed. And vast centralized corporate *searchable* datab
are being compiled. In short, according to Lessig, the "panoptic" form that cyberspace is

increasingly coming to assume will only become more entrenched if it left to develop on its "own."

McChesney delivers a similarly sobering assessment of the WWW. He concedes th web constitutes a unique technology. It is, he writes, "quite a remarkable and complex phenomenon that cannot be categorized by any previous medium's experience."[47] However argues that real-world hegemonic market logic is colonizing the Web. "In the battle between World Wide Web's ballyhooed 'decentralizing' bias and the market's tendency toward concentration, the market is winning" he writes.[48] Among the many advantages corporate m conglomerates hold:

1) Deep pockets and lengthy time
2) Digital programming they can plug into the web at little cost
3) The ability to promote web sites in other media
4) A stream of regular advertisers and advertising revenues
5) The ability to buy out small, successful start-up companies
6) Control over strategic places and spaces on the Web, most notably the Internet Serv Provider and so called "portal," or the default home page that automatically loads w user logs on to the Internet.[49]

Portals, which McChesney identifies as a key "killer application," are particularly significa For they channel the flow of users in cyberspace toward traditional media giants such as AOL/Time Warner, CNN, and Disney, among others. "More than browser software or the standard ISP, portals organize the entire Web experience and provide a 'search' mechanism bring Web material to users as effortlessly as possible" he writes.[50] In 1998, at the time McChesney's essay was published, AOL controlled 40 percent of all U.S. online traffic and percent of home use. And of those 60 percent, notes McChesney, 80 percent "never ventur beyond AOL's sites." McChesney does not entirely dismiss the liberatory potential of the But he certainly seeks to stanch what he considers to be the naïve enthusiasm of Net utopia "For activists of all political stripes, the Web increasingly plays a central role in their organi and educational activities," he concedes. However it is deeply problematic to extrapolate fr

this that political activism and education are therefore "the overriding trajectory of cyberspa
In fact the larger tendency, if not the overriding trajectory, according to McChesney is the s
kind of domination manifested by corporate media conglomerates in traditional space in the
places that comprise cyberspace. As he points out, the capacity to publish a web site is no
tantamount to the capacity to dominate culture or society, no matter how new, decentralize
"free" the web might appear to be. Indeed, one might say that McChesney invokes Harvey
"simple rule" with respect to (cyber)spatial control. "Those who command space," Harvey
contends, "can always control the politics of place even though, and this is a vital corollary,
takes control of some place to command space in the first instance."[52] In other words, by vi
of their domination of other media spaces and places ranging from broadcast television and
radio, to newsrooms and studios, to Hollywood movie sets and international movie theater
chains, powerful media elites have been able to, in Harvey's terms, "capture" many of the c
places that collectively compromise the "territory and space" of the WWW.

Surveillance and Cyberspace: When the Panopticon Goes High Tech

If code is being written to (re)establish a hegemonic real-world structure of control ir
cyberspace and capitalism is colonizing the Net and transforming what was once a network
collaborative places built by an eclectic group of academics into a vehicle for an all-
encompassing consumerism, mass media domination, and market-driven competition, there
other equally troubling trends brewing in cyberspace as well. More evidence that cyberspac
space of control is the larger tendency of this "postmodern" space comes in the form of
widespread and increasingly technologically sophisticated surveillance. Advances in techno
driven largely by social, economic and political forces, now make it possible for cyber users
be surveilled in myriad ways, data collected on them and stored away quite possibly for a
lifetime, and entire databases of individuals compiled for a potentially dizzying array of cro

referencing purposes. Indeed with the advent of a complex maze of interconnected compute technology, contends Stefik, "In principle, it is possible to identify every file we read and h long we tarry over a news story. Most people are not consciously aware of these capabiliti And Marcus Franda, author *of Governing the Internet: The Emergence of An International Regime,* notes that "The Internet presents unparalleled opportunities to collect, aggregate, a disseminate information about a person or to develop a profile on a person that might be us governments, businesses, employers, one's personal enemies, or other organizations and pe in a society who previously lacked access to such a potentially invasive device."[54]

We have always been surveilled. In fact we continually surveil ourselves and others Foucault has theorized that constant social surveillance manifests itself via a penetrating pa schema. According to this insidious schema, inspiration for which Foucault draws from Jer Bentham, individuals police themselves and one another based upon an internalized surveil "tower," or Panopticon. The Panopticon is situated so as to afford those in its tower compl visibility of all those who occupy a transparent ring that surrounds it. Those in the ring can see if anyone is policing them from the Panopticon. "In the periphic ring, one is totally seen without ever seeing; in the central tower, one sees everything without ever being seen."[55] In it matters little whether someone actually occupies the observation tower. In the panoptic sc it is assumed someone is watching. That "someone" is in fact socially proscribed patterns c normative behavior. Individuals internalize the panopticized norms and perform them as if someone was surveilling their performance from inside the Panopticon.

Foucault's notion of the Panopticon brilliantly captures the operation of power acro levels of the social order, in particular drawing attention to its deep penetration and enactm the level of the individual. The panoptic regime in which the individual is enmeshed has nov gone high tech. An expansive regime of surveillance boasting immense capabilities of storag

recall, cross-indexing, speed and clarity that simply were not possible before is emerging. T
regime -- which is in fact an intensification and expansion of the old panoptic schema -- cre
the specter of a computerized Panopticon with the capacity to span both time and space in
more wide-reaching and insidious ways than ever before. "It is clear," writes Stefik, "that o
everyday activities leave a trail of information about what we are doing and that this inform
resides in cyberspace. Advertisers – and anyone else who feels like it -- can use computers
networks to pull together those little bits of data into a picture that may be much more revea
than we realize or appreciate."[56]

To argue the advent of a (post)modern high tech Panopticon which shapes cyberspa
and places as well as the human beings who inhabit and produce them is not to advance a "I
Brother" theory of social control. Indeed it is arguably "Little Brother" or many "Little Brot
with gaps and spaces in between them, that together form the vast but imperfect cyberspati
network of contemporary high tech surveillance and data gathering. "We face a variety of
normalising machines," asserts Graham, "imperfectly co-ordinated and each with imperfect
towers"[57] Employer snooping of employee web surfing and e-mail via commercial web
monitoring software such as LittleBrother provides a dramatic example of the extent to whi
high tech surveillance now encompasses the individual virtually everywhere she goes. Othe
workplace web monitoring software includes Elron's Internet Manager, which, among other
things, can create custom reports on top sites visited and most active users as well as send
alerts when company online policies are violated. Adavi Dunkirk Software's Silent Watch a
a network administrator to monitor the workings of up to 49 computers on one screen. It als
records keystrokes and sends alarms when an "inappropriate" web site is visited. And Spect
produces a web monitoring program which takes hundreds of snapshots per hour of web sit
visits recorded by employees as well as their chat room conversations. Some programs can

extrapolate how much it costs for an employee to surf the Web by multiplying the number
minutes the employee spends online by the per-minute rate of his or her salary. According
American Management Association, 54 percent of employers were monitoring their worker
Internet connections and 38 percent were viewing their e-mail as of the fall of 2000, both
perfectly legal practices.[58] The proliferation of web snooping software on corporate intrane
reveals the ways in which firmly established and entrenched social relations and hierarchies
power in "real" space are shaping cyberspace, or, once again, how power and domination a
"writing themselves" into cyberspace.

One might say that the "traditional" Panopticon, which according to Foucault, has "
of amplification … to increase and multiply"[59] is doing precisely this. We are, suggests Gra
enmeshed in a contemporary Panoptic regime in which what he calls "surveillant simulation
or "Interlinked technological systems of data capture and surveillance, (and) computerised
processing and simulation" -- functions as its driving force. Under such a regime, computeri
devices surveil (and judge) virtually by themselves. For example, a camera system is deploy
the Super Bowl and linked to a computerized database of images of "known" terrorists and
criminals. The camera scans the crowd, sends data back to the computer, compares the data
stored images of "terrorists," and attempts to make a match. "Surveillant simulation" also a
a "smart bomb" to adjust its course in real time by way of an internal computer plugged into
Global Positioning System. "Together, these technologies allow locations and patterns of fl
be precisely defined, surveilled and virtually simulated against a global geometry of precise,
digital, time-space coordinates," writes Graham. Graham also notes that so-called cyberneti
loops that monitor citizen behaviour – for example "cookies" deposited on an individual
computer's hard drive so that the next time one surfs to Amazon.com he or she will be met
"Hi Christof. Would you consider buying this? " -- are making it "possible to replace *aggre*

geo-demographic spatial data sets (say, at postcode or census tract level) with individual se based on *actual citizen behaviour of consumption*" (Graham's emphasis).[60] According to Graham, "surveillant simulation" moves control mechanisms beyond physical structures in "pervasive webs of electronic systems, which assert disciplinary control by 'distributing bodies/uses in space, allocating each individual/function to a cellular partition, (and) creating efficient machine out of its analytical spatial arrangement'."[61]

Alternatively, surveillant simulation might be viewed as *em*powering. For example, customized coupon that roadrunnersports.com sends me will put me in my favorite running while saving me money and time. Graham also notes that the same surveillance technologie deployed to control and dominate others can be turned against powerful interests. GIS techniques, he notes, have been used to expose so-called "red-lining" practices in Milwauke And the widespread presence of Closed Circuit TV in many public venues not only surveil potential troublemakers, but the police who, in the presence of cameras, risk getting caught a Rodney King like scandal if they abuse their power. A high tech panoptic regime characte by surveillant simulation might also allow me to check on my child-care provider to make s that she is not abusing my child. However, I had better beware that my employer could be snooping in on my web surfing habits via LittleBrother and may accuse me of wasting com time to watch my child being watched. Seemingly absurd yet quite possible, the latter scena dramatically demonstrates the ways in which cyberspace is being shaped to suit an entrenc yet ever expanding panoptic regime. "What generalizes the power to punish, then, is not th universal consciousness of the law in each juridical subject; it is the regular extension, the infinitely minute web of panoptic techniques," writes Foucault in *Discipline and Punish*.[62] I Graham, surveillant simulation is ultimately "ambivalent." However it is clear that he is rath

more suspicious of its controlling and dominating tendencies and considerably less enthusia about its emancipatory potentialities.

As does Graham implicitly, William G. Staples draws explicitly from Foucault in hi book *Everyday Surveillance: Vigilance and Visibility in Postmodern Life*. Staples "rejects th idea of a highly coordinated, state-driven, Big Brother monopoly over the practice of watchi people" and focuses instead "on the microtechniques of surveillance and social control that and treat the body as an object to be watched, assessed, and manipulated."[63] In advancing a theory of "Postmodern Social Control" Staples notes some of the interesting if also troublin paradoxes it encompasses. The most notable of these is the way in which "surveillance and discipline have become oddly democratic; everyone is watched, and no one is trusted."[64] To credit, Staples does not make dramatic claims for a brand new regime of control but instead states that he sees "the new disciplinary techniques, then, both as a product of important, l term processes set in motion than two centuries ago and as shaped by a newly emerging cul context."[65] Staples seeks to "extend" Foucault's study of modern control "into the postmod era."[66] In so doing he argues that "Postmodern" surveillance practices are characterized by:

1) Increasingly technology-based, methodical, automatic, anonymous surveillance generating a permanent record;
2) New techniques that treat the body as an object that can be watched, assessed, a manipulated;
3) New techniques that are often local and operate in everyday lives;
4) The placement of wide-ranging populations, not just the official deviant, under scrutiny.[67]

The above practices together constitute what Staples calls "meticulous rituals of power."

Foucault's theory of a panoptic regime of surveillance already encompasses the methodical and automatic, the body is already being watched, assessed, and manipulated, th Panopticon is already operating at the local and everyday levels, and all are already subject scrutinizing eye. However, there has arisen a marked convergence and produced synergy am

a range of high tech surveillance devices which can be seen to significantly extend the capabilities and reach of the "traditional" panoptic regime. Indeed Staples delivers a persua argument for the intensification of the panoptic regime by way of its extension into cybersp After detailing a fascinating list of abuses of "webcam" technology, including its placement locker rooms, public restrooms, and its deployment in the service of looking up women's sk Disney World, Staples offers the following analysis:

> Power, in this case, is exercised in a multi-directional, capillary network. It appears nearly everywhere, dispersed and fragemented. At the same time, it links individuals organizations in a complex web of social relations. The Net, then, for all its hyperbo promise of liberation and freedom, must also be understood as a *potential* tool for fostering and maintaining unbalanced and unequal authority relationships.[68]

Furthermore, according to Staples: "The act of linking people together within a network enhances hierarchical observation and fosters normalizing judgements."[69] When the Panopti goes high tech, as Staples argues persuasively it has, gazes are cast electronically and over a much wider area, with a much bigger potential audience. In other words, "stretched-out" and "interconnected" social relations paradoxically become far more wide-reaching and wide-ran at the same time that they become radically more constricting and confining.

Staples makes an important contributon to the larger understanding of the operaton power and control by way of electronic surveillance in cyberspace. But his focus, as Fouca is, is primarily on the mico-networks and webs across and within which power moves and (re)produces itself. Although a neatly packaged Big Brother conspiracy, as Staples and othe contend, is simply not credible, it is important here, I think, to consider a few specific exam of cyberspatial power relations as they are manifesting themselves at the macro level. More 40 national governments have moved to limit and control their citizens access to the Interne (Denning). And many are pushing hard to surveil their citizens' actions in cyberspace in nev far-reaching ways. In the U.S., the FBI's software program "Carnivore" used to scan e-mail

generated much controversy. Its capacity to read (or not read) the content of e-mail has bee
hotly debated by the government and civil liberties advocates such as the American Civil
Liberties Union and the EFF. The UK last year announced that it was building a $39 millio
Internet Surveillance Center. Among other things, the center would make it possible for the
government to track any individual website in the UK. The Government Technical Assista
Center (GTAC), scheduled to be operable before end of 2001 "requires local ISPs to hardwi
links directly to it, thus enabling government 'security operators' to download Internet and e
traffic, monitor mobile phone networks, and decode encrypted messages."[70] At the global le
1998 European Parliament report alleged that " 'within Europe, all e-mail, telephone, and fa
communications are routinely intercepted by the United States National Security Agency (N
transferring all target information from the European mainland . . . to Fort Meade in
Maryland."[71] The report further alleges that this surveillance system -- code named "Echelo
has been operating out of the NSA since the 1970s under the direction of a US/UK intellige
alliance, also know as UKUSA. The alliance also includes Australia, Canada, and New Zea
the report said. It is worth noting that all alliance members are former British colonies. In th
sense it could be argued that the powers that played an enormously pivotal role in the curre
global structuration of space, place and power are extending their reach into cyberspace. It i
arguably no coincidence that of the 13 root system file servers that form the backbone of th
contemporary Internet, 10 are in the United States (two are in Europe and one in Japan). It i
to this current infrastructure of the Net that "whether a Peruvian consults an online databas
the United States, or a Canadian hunts for a hotel on a Peruvian website, Peru pays the full
of the international connection."[72]

Conclusion

The dominant ideology of the information "revolution" constructs a problematic dichotomy between the material and the immaterial and/or symbolic. In pursing a critical geographic analysis of cyberspace of precisely the kind Mitchell, Harvey, and Pred have ap in other cultural geographic contexts, Dale Bradley challenges this ideology. He does so by foregrounding the crucial interplay between power, space, human social relations and real a virtual space which has formed a decidedly real -- and dominating -- structure of power in electronic space:

> Cyberspace is more usefully understood as an active strategy through which various forms of control are enacted . . . than a static space 'in' which individuals and inform are somehow digitally (re)produced . . . The importance of the presumed 'split' betw the physical and the virtual (whether in terms of space or the body) cannot be overs because it is only by positing a profound separation between the physical world of s and the virtual world of cyberspace that the utopian claims made with regard to cyberspace can be deployed. If there is no separation, then cyberspace's utopian possibilities dissolve as one is forced to consider its historical production *within* and rather than *beside* or *beyond*, social power relations.[73]

In fact, as Stallabrass notes, material structures largely reconstruct themselves and/or write themselves into newly emergent spaces created by cyberspatial technology. On the Interne writes, "things generally look much like what they are: large databases look large, corporati look powerful, military complexes look remote and dangerous . . . "[74] In short, the creation o new "virtual" spaces by communication technologies is not nearly so "revolutionary" in ter challenging traditional manifestations of power as some have claimed. While, as Staples suggests, active resistance to various micro practices *might* lead to long, hard and slow chan the chances of such change fueling fundamental macro level social change seem remote inde This is not to say that "resistance is futile." Nor is it to imply that cyberspace has become, Lessig puts it "a perfect tool of control." It is, however, to argue that larger social and powe relations in real spaces and places appear to be, for the most part, reconstructing themselve cyberspace.

That this is occurring is hardly surprising. For despite what the most rosy thinking technological determinists might say, cyberspace is at its most basic level a human social construct. It did not arise miraculously outside of human social relations as a haven for free Its nature is not utopian. Rather it is comprised of many different places, themselves the pr of fluid social relations. Indeed the *human* social relations which both comprise and constru cyberspace are deeply implicated in a wider web of power relations. At the very least, curr structures and schemes of power and domination are insinuating themselves into cyberspac And, by way of a technologized surveillance with far greater panoptic capacities than previ regimes of surveillance, those with more power in real space are constructing in cyberspace structure of domination *potentially* far more penetrating and all-encompassing than that whi currently holds sway. It is, Mitchell reminds us, critical to understand the relationship betw ambiguity and power. If that is so, then it is imperative for analyses of cyberspace to expos insinuation of domination and control into that space on a scale that has perhaps not been previously realized. "At what point," write Caspar Bowden and Yaman Akdeniz in the ess "Privacy II: Cryptography and Democracy -- Dilemmas of Freedom," "does the qualitative efficiency of surveillance invalidate the democratic legitimacy it used to protect?"[75] Charles Raab, in "Privacy, Democracy, Information," echoes Bowden and Akdeniz. "The absence o surveillance and protection of privacy are necessary conditions for both liberal and particip democracy," he writes.[76] Given the current state of surveillance in cyberspace, democracy i cyberspace and the real-world spaces and places with which it is inexorably bound, could b jeopardy. Cyberspace may indeed be in danger of becoming the perfect *space* of control. "W the Web," writes McChesney, "is in many ways revolutionizing the way we lead our lives, revolution that does not appear to include changing the identity and nature of those in powe One must be careful not to deliver a sweeping claim that cyberspace is this, that or the othe

thing. But it seems clear that many of its contemporary tendencies are pushing us closer to ever-more penetrating panoptic regime.

Notes

[1] S. O Siochru et al., *Global media governance: A beginner's guide*, (Rowman & Littlefield, (2002), not yet published).
[2] B. Loader, 'Introduction', in B. Loader, ed., *The governance of cyberspace: politics, technology and globa restructuring*, (London, Routledge, 1997), p. 1.
[3] D. Bell, 'Cybercultures reader: a user's guide', in D. Bell and B. Kennedy, eds., *The Cybercultures Reader*, York, Routledge, 2000), p. 1.
[4] V. Mosco, 'Webs of myth and power: connectivity and the new computer technopolis', in A. Herman and T. eds., *The World Wide Web and contemporary cultural theory*, (London, Routledge, 2000), p. 41.
[5] J. King et al., 'The rise and fall of Netville: the saga of a cyberspace construction boomtown in the great div S. Kiesler, ed., *Culture of the Internet*, (Mahway, New Jersey, Lawrence Erlbaum Associates, 1997), pp. 3-33
[6] *Ibid.*
[7] According to King et al., Transfer Control Protocol (TCP) is the mechanism whereby data is sent across the Internet Protocol (IP) defines the data to be sent and then grabbed by sorting information into standard packe can be transmitted. Domain Name Service (DNS) "structures the assignment of names on the network and con those names to their unique IP addresses."
[8] King et al., 'The rise and fall of Netville', p. 12.
[9] D. Massey, 'A place called home', *New Formations* **17**, pp. 3-15.
[10] O. Froehling, 'Internauts and guerrilleros: the Zapatista rebellion in Chiapas, Mexico and its extension int cyberspace', in M. Crang et al., eds., *Virtual geographies: bodies, space and relations*, (London, Routledge, p. 176.
[11] D. Harvey, *The condition of postmodernity*, (Cambridge, MA, Blackwell, 1990).
[12] D. Massey, 'The conceptualization of place', in D. Massey and P. Jess, eds., *A place in the world?*, (Oxfor The Open University, 1995), p. 54.
[13] *Ibid*, p. 54.
[14] E. Relph, *Place and placelessness*, (London, Pion Limited, 1976), p. 8.
[15] *Ibid*, p. 8.
[16] Real material things -- computer chips, hard drives, coaxial cable, servers, telephone lines -- built and insta real, material beings comprise cyberspace at its most fundamental technological structural level.
[17] A. Newey, 'Freedom of expression: censorship in private hands," in The National Council for Civil Liberti *Liberating cyberspace: civil liberties, human rights and the Internet*, (London, Pluto Press, 1999), pp. 29-30.
[18] J. Kolko, 'The death of cities? The death of distance? Evidence from the geography of commercial Internet in I Vogelsang and B. Compaine, eds., *The Internet upheaval: raising questions, seeking answers in commun policy*, (Cambridge, MA, The MIT Press, 2000), p. 73.
[19] Mosco, 'Webs of myth and power', p. 40.
[20] *Ibid*, p. 62.
[21] *Ibid*, p. 42.
[22] *Ibid*, p. 59.
[23] Pred, *Place and placelessness*, p. 5.
[24] D. Mitchell. *The lie of the land: migrant workers and the California landscape*, (Minneapolis, University Minnesota Press, 1996).
[25] *Ibid*, p. 6.
[26] Harvey, *The condition of postmodern ity*, p. 204.
[27] *Ibid*, p. 226.
[28] Mitchell, *The lie of the land*, p. 6.
[29] Although it is beyond the scope of this analysis, it would be fascinating to pursue a Mitchell-inspired anal the construction and production of the real, material infrastructure that undergirds the Net. The hard labor inv in producing its material infrastructure appears to be almost entirely overlooked in the critical literature chron

its rise. Instead, as in King et al.'s history of the Net, software engineers, computer scientists, academics and o intellectual laborers are typically cast as its exclusive producers.

[30] Mitchell, *The lie of the land*, p. 28.

[31] *Ibid*, p. 34.

[32] Harvey, *The condition of postmodernity*, p. 233.

[33] There is considerable evidence that the consumerist, utopian's Net is rapidly becoming the Net as it (mostl Indeed, the commercialization of the Internet could be viewed as confirmation of Harvey's proposition (origin made well before the rise of the Internet) the battle for control of space is overwhelmingly tilted toward the pov capital. Indeed, given the fact the Internet is the historical -- and contemporary -- legacy of the U.S. military's ARPANET, Harvey's observations about corporate colonization tactics are particularly salient vis-à-vis contemporary consumerist utopian trends on the Net. "Domination of marketing networks and spaces," writes Harvey, "remains a fundamental corporate aim, and many a bitter struggle for market share is fought out with precision of a military campaign to capture territory and space" (p. 233).

[34] J.P. Barlow, 'Roundtable, Atlantic unbound: life, liberty and the pursuit of copyright', *The Atlantic Mont Online*, <http://www.theatlantic.com/unbound/forum/copyright/intro.htm>.

[35] C. Kedzie, 'A brave new world or a new world order?', in S. Kiesler, ed., *Culture of the Internet*, (Mahwa Jersey, Lawrence Erlbaum Associates, 1997), p. 227.

[36] M. Stefik, *The Internet edge: social, legal, and technological challenges for a networked world*, (Cambridg The MIT Press, 1999).

[37] J. Berland, 'Cultural technologies and the 'Evolution' of Technological Cultures', in A. Herman and T. Swis *The World Wide Web and contemporary cultural theory*, (London, Routledge, 2000), p. 242.

[38] R. McChesney, 'So much for the magic of technology and the free market: the World Wide Web and the co media system', in A. Herman and T. Swiss, ed., *The World Wide Web and contemporary cultural theory*, (L Routledge, 2000), p. 7.

[39] J. Stallabrass, 'Empowering technology: the exploration of cyberspace', *New Left Review*, May/June 1995,

[40] D. Haraway, 'A cyborg manifesto: science, technology and socialist-feminism in the late twentieth century' Bell and B. Kennedy, eds., *The Cybercultures Reader*, (New York, Routledge, 2000), p. 309.

[41] S. Graham, 'Geographies of surveillant simulation', in M. Crang et al., ed., *Virtual geographies: bodies, s and relations*, (London, Routledge, 1999), p. 145.

[42] *Ibid*, pp. 147-48.

[43] Berland, 'Cultural technologies', p. 243.

[44] L. Lessig, *Code and Other Laws of Cyberspace*, (New York, Basic Books, 1999).

[45] *Ibid*, p 86.

[46] *Ibid*, p. 82.

[47] McChesney, 'So much for the magic of technology', p. 6.

[48] *Ibid*, pp. 21-22.

[49] *Ibid*, p. 25.

[50] *Ibid*, p. 22.

[51] *Ibid*, p. 34.

[52] Harvey, *The condition of postmodernity*, p. 234.

[53] Stefik, *The Internet edge*, p. 209.

[54] M. Franda, *Governing the Internet: the emergence of an international regime*, (Boulder, CO, Lynne Rienn Publishers, 2001) p. 158.

[55] M. Foucault, *Discipline and punish: the birth of the prison*, trans. Alan Sheridan, 2nd ed., (New York, Vintage Books, 1995) p. 202.

[56] Stefik, *The Internet edge*, p. 211.

[57] Graham, 'Geographies of surveillant simulation', p. 142.

[58] C. Waltner, 'Web watchers -- tools that monitor employees' net surfing save companies bandwidth and tim *Information Week*, 27 April (1998).

[59] Foucault, *Discipline and punish*, pp. 207-208.

[60] Graham, 'Geographies of surveillant simulation', p. 143.

[61] *Ibid*, p. 144.

[62] Foucault, *Discipline and punish*, p. 224.

[63] W. Staples, *Everyday surveillance: vigilance and visibility in postmodern life*, (Lanham, MD, Rowman & Littlefield Publishers, Inc., 2000), p. ix.

[64] *Ibid*, p. 4.

[65] *Ibid*, p. 9.
[66] *Ibid*, p. 11.
[67] *Ibid*, p. 11.
[68] *Ibid*, p. 148.
[69] *Ibid*, p. 148.
[70] Franda, *Governing the Internet*, p. 160.
[71] *Ibid*, p. 190.
[72] O Siochru et al., *Global Media Governance*.
[73] D. Bradley, qtd. in Berland, 'Cultural technologies', pp. 254-255.
[74] Stallabrass, 'Empowering technology', p. 5.
[75] C. Bowden and Y. Akdeniz., 'Privacy II: cryptography and democracy -- dilemmas of freedom', in The National Council for Civil Liberties, ed., *Liberating cyberspace: civil liberties, human righ the Internet*, (London, Pluto Press, 1999), p. 102.
[76] C. Raab, 'Privacy, Democracy, Information', in B. Loader, ed., *The governance of cyberspace: politics, tech and global restructuring*, (London, Routledge, 1997), p. 161.
[77] McChesney, 'So much for the magic of technology', p. 33.