

The Pearly Gates of Cyberspace:
A History of Space from Dante to the Internet

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Chapter Six: C Y B E R S P A C E

With the exponential force of its own big bang, cyberspace is exploding into being before our very eyes. Just as cosmologists tell us that the physical space of our universe burst into being out of nothing some fifteen billion years ago, so also the ontology of cyberspace is *ex nihilo*. We are witnessing here the birth of a new domain, a new space that simply did not exist before. The interconnected "space" of the global computer network is not expanding into any previously existing domain; we have here a digital version of Hubble's cosmic expansion, a process of space creation.

Like physical space, this new "cyber" space is growing at an extraordinary rate, increasing its "volume" in an ever-widening "sphere" of expansion. Each day thousands of new nodes or "sites" are added to the Internet and other affiliated networks, and with each new node the total domain of cyberspace grows larger. What increases here is not volume in any strictly geometrical sense—yet it is a *kind* of volume. In cyberspace each site is connected to dozens, or even thousands, of others through software-defined "hot buttons." These digital connections link sites together in a labyrinthian web that branches out in many "directions" at once. In describing cyberspace we might use the words "web" and "net,"

which classically are two-dimensional phenomena, but even the most neophyte surfer knows that cyberspace cannot be constrained by two axes. This new, enigmatic, space is the subject of our remaining three chapters.

Cyberspace is not just expanding, it is doing so exponentially. In this sense also its genesis parallels that of physical space. According to the latest theories of cosmology, before the smoothly expanding universe we see today there was an early phase of wildly excessive expansion that physicists refer to as the "inflationary" period. During this phase, space swelled from a microscopic point smaller than a proton to the size of a grapefruit in a fraction of a second. In this larval stage, the rudiments of large-scale cosmic structure were laid down, the body-plan, as it were, for the galactic web that constitutes our universe today.

Right now cyberspace is going through its own inflationary period. In the past fifteen years, the Internet has swelled from fewer than a thousand host computers to more than thirty-seven million—and growing by the day. Because each new node becomes in itself a hub from which further nodes might sprout, the greater the number of nodes the greater the possibility for even more expansion. In this seminal inflationary phase the large-scale structure of the cyber-domain is also being formed.

The exponential pattern of cyberspatial growth is evidenced by even a most cursory history. The dawn of cyber-creation—the first quantum flicker, as it were, of a new domain tunneling into being—can be traced to California in 1969. That year saw the formation of the world's first long-distance computer network, the ARPANET, funded by the U.S. Department of Defense (DOD) through its Advanced Research Projects Agency (ARPA). In October 1969, technicians from the Boston-based firm Bolt Beranek and Newman linked together, via specially laid telephone lines, two computers hundreds of miles apart, one at UCLA, the other at the Stanford Research Institute. By the end of the year two

more nodes had been added to this nascent net—the University of California at Santa Barbara and the University of Utah—making a network of four sites.¹

By the next year, write computer historians Katie Hafner and Matthew Lyon, "the ARPA network was growing at a rate of about one node per month,"² and by August 1972 it contained twenty-nine nodes located in universities and research centers across the USA.³ In these early years, when maintaining a site cost more than \$100,000 per annum (with all the money coming from the DOD), growth was necessarily incremental.⁴ Indeed, by 1979, a decade after the first two sites were connected, there were still just sixty-one ARPANET sites.

The advantages of what was already being called "the Net" were, however, becoming evident, and more and more people—especially computer scientists—were calling for online access. But as a research project of the Defense Department, the ARPANET was not easily available to anyone outside ARPA's direct circle. Clearly there was need for a civilian network as well. To that end, in 1980 the National Science Foundation decided to sponsor a network to connect the growing number of computer science departments around the country—the CSNET. Though separate, the two networks were interconnected so that members of each could communicate with one another. During the eighties, other networks also were connected to the ARPANET, creating a global network of networks. The growing desire to communicate *between* networks brought about the need for a standardized set of procedures that would enable all networks to pass information amongst themselves—what came to be called an "Internet Protocol." From this originally technical term the "Internet" would get its name.

Still the Net remained a rarefied domain. In the early eighties few people outside the military and the academic field of computer science had any network access, and few Americans were even aware that "cyberspace" existed.⁵ In the early 1980s bulletin board services (BBS's) also started up, but these were not generally networked together. The word itself was only

¹Katie Hafner, and Mark Lyon, *Where Wizards Stay Up Late: The Origins of the Internet*. New York: Simon and Schuster, 1996, pp. 151-155.

²Hafner, *ibid.*, p. 168.

³Hafner, *ibid.*, p. 178.

⁴Hafner, *ibid.*, p. 242.

coined in 1984, in William Gibson's seminal cyberpunk novel, *Neuromancer*. In 1985, however, the expansion of cyberspace shifted into a higher gear. Following the success of CSNET, the National Science Foundation made the further decision to build a national "backbone" network to serve as the foundation for a series of regional networks linking universities around the country. Replacing the outdated ARPANET, this NSFNET was the basis of what soon became the Internet.

The creation of the NSFNET marks a turning point in the history of cyberspace: Here was the start of cyberspatial inflation. Since then the pace of growth has accelerated rapidly, outstripping the wildest imaginings of its creators. By late 1998, as I write, the World Wide Web (which is the most public component of the Internet) has over 300 million pages. So much volume is being added to the World Wide Web that major cataloging services such as Yahoo and AltaVista estimate their libraries have logged only 10 percent of the total. Inflationary growth on the Web is now so extreme that experts worry they will never be able to keep track of it all.

A hitherto nonexistent space, each year this new digital domain plays a greater role in more and more people's lives. Like many "netizens," I now have e-mail correspondents around the world. People with whom it would be difficult to communicate in the flesh are often readily available online, especially if they work in the academic arena. Almost all academic institutions, research centers, and major libraries in the United States now have Web sites. Through my computer I can access the catalog of the Library of Congress and that of UCLA, which is physically located just a mile from where I live. In the not-too-distant future, the texts themselves will also be online; as already is the content of many magazines and newspapers. Why buy the *New York Times* on paper when you can read it online for free? Moreover, in the new publishing paradigm now emerging, many publishers eschew hard copy entirely and only publish online.

Businesses too are staking out a presence in cyberspace. Seemingly every corporation from IBM and Nike on down now sports a Web site packed with corporate PR and product information. Included in an increasing number of sites is also the ability to purchase online. Clothes, books, cosmetics, airline tickets, and computer equipment (to name just a few items) can now be bought over the Net. According to a recent Commerce Department report, ten million people in the United States and Canada had bought something online by the end of 1997. The report estimates that electronic commerce should reach \$300 billion by 2002. The virtual mall has arrived.

Whatever the vision of the Internet's founders, cyberspace has long since burst the husk of its academic seedpod. These days every second college kid in America has his or her own home page, spawning what must be the largest archive ever of the adolescent mind. A growing number of families are also "moving" into cyberspace, keeping loved ones posted online with digitized snapshots of their summer holidays. With the advent of automated Web site-authoring software, the family home page is destined to become as ubiquitous as the old photo album—and a lot more public.

Most prominently, cyberspace is a new place to socialize and play. Chat rooms, newsgroups, IRC channels, online conferences and forums, and the fantasy worlds known as MUDs—all seem to promise almost infinite scope for social Interaction. Moreover, in cyberspace one can readily search for friends with similar interests. As online pioneer Howard Rheingold has written, while "you can't simply pick up a phone and ask to be connected with someone who wants to talk about Icelandic art or California wine, or someone with a three-year-old daughter or a forty-year-old Hudson, you can, however, join a computer conference on any of these topics."⁶ The level of discussion in many public forums may well be highly variable, but serious *private* online discussion groups abound on a

⁶Howard Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier*. San Francisco: HarperPerennial, 1994, p. 27.

vast array of topics, from biblical exegesis to particle physics, from *The Divine Comedy* to the big bang.

As of mid 1998, there are one hundred million people accessing the Internet on a regular basis and it is estimated that in the next decade there will be close to a billion people online. With three hundred million pages already on the World Wide Web, it is currently growing by a million pages a day. In just over a quarter century, this space has sprung into being from nothing, making it surely the fastest-growing "territory" in history.

In a very profound sense, this new digital space is "beyond" the space that physics describes, for the cyber-realm is not made up of physical particles and forces, but of *bits* and *bytes*. These packets of data are the ontological foundation of cyberspace, the seeds from which the global phenomena "emerges." It may be an obvious statement to say that cyberspace is not made up of physical particles and forces, but it is also a revolutionary one. Because cyberspace is not ontologically rooted in these physical phenomena, *it is not subject to the laws of physics*, and hence it is not bound by the limitations of those laws. In particular, this new space is not contained within physicists' hyperspace complex. No matter how many dimensions hyperspace physicists add into their equations, cyberspace will remain "outside" them all. With cyberspace, we have discovered a "place" *beyond hyperspace*.

We should not underestimate the importance of this development. The electronic gates of the silicon chip have become, in a sense, a metaphysical gateway, for our modems transport us out of the reach of physicists' equations into an entirely "other" realm. When I "go" into cyberspace I leave behind both Newton's and Einstein's laws. Here, neither mechanistic, or relativistic, or quantum laws apply. Traveling from Web site to Web site, my "motion" cannot be described by *any* dynamical equations. The arena in which I find myself online cannot be quantified by *any* physi-

cal metric; my journeys there cannot be measured by *any* physical ruler. The very concept of "space" takes on here a new, and as yet little understood, meaning, but one that is definitively beyond physicists' ken.

Ironically, cyberspace is a technological by-product of physics. The silicon chips, the optic fibers, the liquid crystal display screens, the telecommunications satellites, even the electricity that powers the Internet are all by-products of this most mathematical science. Yet if cyberspace could not exist without physics, neither is it bound within the purely physicalist conception of the real. In the parlance of complexity theory, cyberspace is an *emergent phenomena*, something that is more than the sum of its parts. This new "global" phenomena *emerges* from the interaction of its myriad interconnected components, and is not reducible to the purely physical laws that govern the chips and fibers from which it indubitably springs.

All this may sound rather radical, and many cyberspace enthusiasts have suggested that nothing like cyberspace has existed before. But on the contrary there is an important historical parallel here with the spatial dualism of the Middle Ages. As we have seen, in that time Christians believed in a physical space described by science (what they called "natural philosophy") and a nonphysical space that existed "outside" the material domain. This nonphysical space metaphorically *paralleled* the material world, but it was not contained within physical space. Although there were connections and resonances between the two spaces, medieval spiritual space was a separate and unique part of reality from physical space.

So too the advent of cyberspace returns us to a *dualistic* theater of reality. Once again we find ourselves with a material realm described by science, and an immaterial realm that operates as a different plane of the real. As with the medieval world picture, there are connections and resonances between these two spaces.

Commentator N. Katherine Hayles has noted, for example, that one cannot experience cyberspace at all except through the physical senses of the body: the eyes that look at the computer screen or at the stereoscopic projections of virtual reality headsets, the hands that type the commands at the keyboard and control the joysticks, the ears that hear the Real Audio sound files. Yet while physical space and cyberspace are not entirely separate, neither is the latter *contained* within the former.

In some profound way, cyberspace is *another* place. Unleashed into the Internet, my "location" can no longer be fixed purely in physical space. Just "where" I am when I enter cyberspace is a question yet to be answered, but clearly my position cannot be pinned down to a mathematical location in Euclidian or relativistic space—not with any number of hyperspace extensions! As with the medievals, we in the technologically charged West on the eve of the twenty-first century increasingly contend with a two-phase reality.

But what does it mean to talk about this digital domain as a "space" at all? What kind of space is it? Some might object that the online arena is just a vast library—or less generously, a vast soup—of disconnected information and junk. And certainly there is a lot of junk online. Nonetheless, it is important to recognize the genuinely spatial nature of this domain. Whatever its content may be, a new context is coming into being here; a new "space" is evolving.

What is at issue, of course, is the meaning of the word "space" and what constitutes a legitimate instance of this phenomena. I contend that cyberspace is not only a legitimate instantiation of this phenomena but also a socially important one. In the "age of science " many of us have become so habituated to the idea of space as a purely physical thing that some may find it hard to accept cyberspace as a genuine "space." Yet Gibson's neologism is apposite, for it captures an essential truth about this new domain. When I "go into" cyberspace, my body remains at

rest in my chair, but "I"—or at least some aspect of myself—am teleported into another arena which, while I am there, I am deeply aware has its own logic and geography. To be sure, this is a different sort of geography from anything I experience in the physical world, but one that is no less real for not being material. Let me stress this point: *Just because something is not material does not mean it is unreal*, as the oft-cited distinction between "cyberspace" and "real space" implies. Despite its lack of physicality, cyberspace is a real place. *I am there*—whatever this statement may ultimately turn out to mean.

Even in our profoundly physicalist age, we invoke the word "space" to describe far more than just the physical world. We talk about "personal space," and about having "room to move" in our relationships, as if there was some kind of relationship space. We use the terms "head space" and "mental space," and Lacanian psychoanalysts (following Freud) believe the mind itself has a spatial structure. Literary theorists discuss literary space and artists discuss pictorial space.

Contemporary scientists, for their part, now envisage a whole *range* of non-physical spaces. Chemists designing new drugs talk about molecular space; biologists talk about evolutionary spaces of potential organisms; mathematicians study topological spaces, algebraic spaces, and metric spaces; chaos theorists studying phenomena such as the weather and insect plagues look at phase spaces, as indeed do physicists studying the motion of galaxies and the quantum behavior of atoms; and in a recent *Scientific American* article an epidemiological analysis of the spread of infectious diseases posited the idea of viral spaces. "Space" is a concept that has indeed come to have enormous application and resonance in the contemporary world.

Most obviously, the online domain is a *data space*. This was the concept at the core of Gibson's original cyberpunk vision. In *Neuromancer* and its sequels, Gibson imagined that when his

"console cowboys" donned their cyberspace helmets, they were projected by the power of computer-generated three-dimensional illusionism into a virtual data landscape. Here, the data resources of global corporations were represented as architectural structures. The data bank of the Mitsubishi Bank, for example, was a set of green cubes, that of the "Fission Authority" was a scarlet pyramid. As a nice example of life imitating art, Tim Berners-Lee, the inventor of the World Wide Web, has said that his goal when designing the Web was to implement a global data space that could be accessed and shared by researchers around the world. We are yet to realize the full VR splendor of Gibson's original vision, but the essential concept of a global data space is already manifest in the World Wide Web.

But cyberspace has become much more than just a data space, because as we have noted much of what goes on there is not information-oriented. As many commentators have stressed, the primary use of cyberspace is not for information-gathering but for social interaction and communication-and increasingly also for interactive entertainment, including the creation of a burgeoning number of online fantasy worlds in which people take on elaborate alter egos.

What I want to explore in this first cyberspace chapter are the ways in which this new digital domain functions as a space for complex mental experiences and games. In this sense, we may see cyberspace as a kind of electronic *res cogitans*, a new space for the playing out of some of those immaterial aspects of humanity that have been denied a home in the purely physicalist world picture. In short, there is a sense in which cyberspace has become a new realm for the mind. In particular it has become a new realm for the imagination; and even, as many cyber-enthusiasts now claim, a new realm for the "self." To quote MIT sociologist of cyberspace Sherry Turkle: "The Internet has become a significant social laboratory for experimenting with the constructions and

reconstructions of self that characterize postmodern life."⁷ Just what it means to say that cyberspace is an arena of "self" is something we must examine closely, but the claim itself commands our attention.

The fact that we are in the process of creating a new immaterial space of being is of profound psychosocial significance. As we have been documenting in this book, any conception of "other" spaces being "beyond" physical space has been made extremely problematic by the modern scientific vision of reality. That problematizing is one of the primary pathologies of the modern West. Freud's attempt, with his science of *psychoanalysis*, to reinstate mind or "psyche" back into the realm of scientific discourse remains one of the most important intellectual developments of the past century. Yet Freud's science was distinctly individualistic. Each person who enters psychoanalysis (or any other form of psychotherapy), must work on his or her psyche individually. Therapy is a quintessentially lonely experience. In addition to this individualistic experience, many people also crave something communal—something that will link their minds to others. It is all well and good to work on one's own personal demons, but many people also seem to want a *collective mental arena*, a space they might share with other minds.

This widespread desire for some sort of collective mental arena is exhibited today in the burgeoning interest in psychic phenomena. In the United States psychic hot lines are flourishing, belief in an "astral plane" is widespread, and spirit channelling is on the rise. In the latter case, the posited collective realm transcends the boundary of death, uniting the living and dead in a grand brotherhood of the ether. Meanwhile, *The X-Files* offers us weekly promises of other realities beyond the material plane, and bookstores are filled with testimonials describing trips to an ethereal realm of light and love that supposedly awaits us all after death. One of the great appeals of cyberspace is that it offers a *collective immaterial arena* not after death, but here and now on earth.

⁷Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet*. New York: Simon and Schuster, 1995, p. 180.

Nothing evinces cyberspace's potential as a collective psychic realm so much as the fantastic online worlds known as MUDs.⁸ Standing for "multiuser domains" or originally "multiuser Dungeons and Dragons," MUDs are complex fantasy worlds originally based on the role-playing board game Dungeons and Dragons that swept through American colleges and high schools in the late seventies. As suggested by the "Dungeons and Dragons" moniker, the original MUDs were medieval fantasies where players battled dragons and picked their way through mazes of dungeons in search of treasure and magical powers. Today MUDs have morphed into a huge range of virtual worlds far beyond the medieval milieu. There is TrekMUSE, a *Star Trek* MUD where MUDers (as players are called) can rise through the ranks of a virtual Starfleet to captain their own starship. There is DuneMUD based on Frank Herbert's science fiction series, and ToonMUD, a realm of cartoon characters. The Elysium is a lair of vampires, and FurryMuck a virtual wonderland populated by talking animals and man-beast hybrids such as *squirriloids* and *wolfoids*.

Like good novels, successful MUDs evoke the sense of a rich and believable world. The difference is that while the reader of a novel encounters a world fully formed by the writer, MUDers are actively involved in an ongoing process of world-making. To name is to create, and in MUD worlds the simple act of naming and describing is all it takes to generate a new alter ego or "cyber-self." MUDers create their online characters, or personae, with a short textual description and a name. "Johnny Manhattan," for instance, is described as "tall and thin, pale as string cheese, wearing a neighborhood hat"; Dalgren is "an intelligent mushroom that babbles inanely whenever you approach"; and Gentila, a "sleek red squirriloid, with soft downy fur and long lush tresses cascading sensuously down her back." Within the ontology of these cyberworlds, you *are* the character you create. As one avid player puts it, here "you are who you pretend to be."⁹ Want to be a poetry-

⁸In fact there is a whole bevy of MUD-type worlds. Other variations are MOOs, MUSHs, MUCKs, and MUSEs. For brevity they are often collectively called MUDs, and that is the term I will use here.

⁹Turkle, *Life on the Screen*, p. 12.

quoting turtle, a Klingon agent, or Donald Duck? In a MUD you can be.

MUDing is quintessentially a communal activity in which players become integrally woven into the fabric of a *virtual society*. Part of that process is the continuing evolution of the world itself. While the basic design of a MUD is determined by its programmer creators, generally known as "wizards" or "gods," in most MUDs players can construct their own rooms or domiciles. Using simple programming commands, MUDers "build" in software or, simply with a textual description, a private space to their own taste. Personal MUD rooms span the gamut from a book-lined tree house, to a padded cell, to the inside of a television set. In some MUDs players can also build larger structures. Citizens of the Cyberion City space station in the MicroMUSE, for example, have built for themselves a science center, a museum, a university, a planetarium, and a rain forest.

Above all, a MUD is sustained by the *characters* who populate it. To use William Gibson's famous phrase, a MUD is a paradigmatic instance of the "consensual hallucination" of cyberspace.¹⁰ Fantasy worlds (whether online or off) are always only as good as the imaginations holding them together, and in successful MUDs the other players are just as keen as you are to take your "squirriloid" nature seriously. As the Unicorn said to Alice on the other side of the looking glass: "If you'll believe in me, I'll believe in you." In successful MUDs everyone is striving for maximal conviction, both for their own character and for the world as a whole.

The interlocking imaginative and social mesh of a MUD means that actions taken by one player may affect the virtual lives of hundreds of others. As in the physical world, relationships build up over time (not untypically over thousands of hours of online engagement); trusts are established, bonds created, responsibilities ensue. The very vitality and robustness of a MUD emerges from

¹⁰William Gibson, *Neuromancer*. New York: Ace Books, 1986, p. 51.

the collective will of the group, wherein the individual cyber-self becomes bound into a social matrix that is none the less real for being virtual. When, as in some combat-based MUDs, a character is killed, often there is a strong sense of loss for the actual human being who has spent hundreds of hours establishing the character. "Gutted" is the word players use; because as Richard Bartle, cocreator of the first MUD, explains, "it's about the only one that describes how awful it is."¹¹

What may at first appear little more than juvenile fantasies—talking animals, space cadets, and Toon-town—can, however, turn out to be surprisingly complex domains of psychosocial exploration. A MUDer friend of mine tells me that for her, MUDing is a way to express sides of herself that she feels are not sanctioned by the relentless "put on a happy face" optimism of contemporary can-do America. MUDing allows out a darker, but, she feels, a more "real" side of herself. For her MUDing is not so much a game as a way to explore and express important aspects of her "self," which (she feels) could not easily be exercised in flesh-and-blood society. Turkle, who has been studying MUD cultures since the early 1990s, notes that my friend's experience is not uncommon. As she writes, these fantasy environments may allow "people the chance to express multiple and often unexplored aspects of the self."¹²

One parallel here is with masks. As actors and shamans attest, masks are powerfully transformative objects. Hidden behind an ersatz face, a man can "become" a wind devil, a monkey spirit, or an ass. MUD descriptors are digital masks, fronts that may enable a range of psychological expression and action, which many people in modern societies may not have access to in their regular lives, or which they do not feel comfortable unleashing in the flesh. "Part of me," says one of Turkle's MUDers, "a very important part of me, only exists inside PernMUD."¹³ In cyberspace, one may have any number of different virtual alter egos operating in a va-

¹¹Rheingold, *The Virtual Community*, p. 156.

¹²Turkle, *Life on the Screen*, p. 12.

¹³Turkle, *ibid.*, p. 12.

riety of different MUDs, literally *acting out* different cyber-selves in each fantasy domain. In *Computers as Theater* virtual reality researcher Brenda Laurel has indeed drawn a parallel between computer games and virtual worlds and the classical power of drama.¹⁴ Although this imaginative role-play is most pronounced in MUDs, it also takes place in online chat rooms, in USENET groups, and on IRC channels. In all these environments, netizens create digital alter egos—though not usually ones as fantastical as those found in MUDs. As a publicly accessible realm of psychological play, cyberspace is, I suggest, an important social tool. This digital domain provides a place where people around the globe can *collectively* create imaginative "other" worlds and experiences. Within these worlds you can not only express your *own* alter egos, you can participate in a group fantasy that has the richness of texture generated by many imaginations working together.

In this respect MUDs may in fact be seen as a variation on practices that occur in many cultures. In ancient Greek society, for example, drama was not merely entertainment, it also served as a vehicle for collective psychological catharsis. Moreover, in many cultures, drama includes the audience, who also become *participants* in whatever "alternative reality" is being enacted. Take, for example, the famous Passion play of Oberammergau in Germany. Every decade the entire town joins in a collective reenactment of Christ's final days; the event lasts for days and transforms the town along with its inhabitants. One way of looking at MUDs is as collective dramas, where again everyone in the community becomes a "player." Everyone gets a part and a costume—and as many lines as they want.

Even in our technological age, one does not have to resort to cyberspace to participate in collective role-playing "drama." Dungeons and Dragons, on which MUDs were originally based, is itself a hugely successful role-playing game. Its endless spinoffs—which include medieval and mystery scenarios—provide

¹⁴Brenda Laurel, see *Computers as Theater*. Addison-Wesley Publishing Company 1993.

plenty of nonelectronic opportunities for the creation of fantastical alter egos. So too do battle board games such as the World War I scenario Diplomacy. During the mid-eighties I was intensely involved for most of a year with a Diplomacy group as we battled it out for control of Europe, making and breaking alliances with one another. As Russia, I became obsessed with my part, and I can still remember the pangs that would accompany news of an ally's betrayal; simultaneous of course was the thrill of one's own devious success. For the final move of our yearlong battle, we all dressed in character and assembled for the denouement. Resplendent in a floor-length velvet crinoline and tiara, for that evening I was "The Tsarina."

Another kind of nonelectronic collective theater is provided by battle figurine games such as Warhammer, played by millions of men and boys the world over. Instead of becoming a single character, Warhammer players command armies of Wood Elves, Orks, and the like. The games are accompanied by elaborate manuals outlining the history, mythology, psychology, and fighting strategies of the various groups. In any discussion of contemporary collective drama one must also, of course, acknowledge Trekkies, many of whom engage as deeply and obsessively in the world of Star Trek as any MUDer. The universe of Kirk, Picard, and Janeway is as vital a "virtual world" as anything found online.

My favorite example of a nonelectronic dramatic alter ego is provided by Bruno Beloff, a computer analyst in Brighton, England. Beloff regularly paints his body like a zebra; then, stark naked except for this coat of black and white stage paint, takes his zebra-self out into public. The zebra's outings include walks along the Brighton Pier, paddles in the ocean, and even visits to the local pub. For Beloff, "being a zebra is a chance to be honest about who I am, which is a fantastic release."¹⁵ Others find similar release in weekend visits to "pony clubs," where they spend their days trotting around in harnesses and their nights sleeping in

¹⁵Emma Crooker, "Zebra Crossing." *HQ*, Sydney, Australia, July/August 1997, p. 63.

stables on straw. Theoretically such options are open to us all, but in practice it is not so easy for zebras on the streets of Manhattan or in the suburbs of Peoria. Whenever Beloff's zebra-self is out and about his girlfriend must keep a careful watch for the police—public nakedness being technically illegal on the Brighton Pier.

Few people have the wherewithal, or courage, to follow Beloff's example—and many would not even want to—but for those who do, cyberspace provides a most useful service. Behind the protective screen of a computer, MUDs open up a space of psychosocial play to us all—to everyone, that is, who can afford a personal computer and a monthly Internet connect fee. Within the sheltered space of the FurryMuck, thousands of people from around the world abandon themselves to their own animal liberation, donning virtual hooves and wings, baring virtual tooth and claw, frolicking in bucolic virtual parks, and (well, they are being animals) enjoying liberal doses of virtual rutting. They can do so here without fear of arrest or the approbation of disapproving parents and friends. What is important is that cyberspace provides a publicly accessible and safe space for such imaginative play. It literally opens up a new realm for people to act out fantasies and try on alter egos in ways that many of us would not risk doing in the physical world. That development is to be welcomed I believe—though, as we shall see, we must be careful not to get too carried away with optimism here.

The value of cyber-psychic role-play is perhaps most evident when considering more down-to-earth examples. Foremost here, and the one that has garnered most media attention, is cyber gender-bending. It is no surprise that most MUDers are young males, yet, says Shannon McRae, a MUD researcher and herself a MUD wizard, "a surprising number of these young men take the opportunity to experience social interaction in a female body."¹⁶ While it is all too easy to overstate the subversive power of such experiences, MUDs can create a social space in which the flux of gender is more fluid.

¹⁶Shannon McRae, "Flesh Made Word: Sex, Text, and the Virtual Body." In *Internet Culture*. Ed. David Porter. New York: Routledge, 1997, p. 79.

Such fluidity can have surprising consequences. Statistically speaking, a female character in a MUD will often turn out to be a man pretending to be a woman. For this reason actual physical women often find their characters harassed to prove they "really" are female. In an arena where females may "really" be males, men cruising for women will often end up partnering not with a woman, but with another man. Since it is not uncommon for such encounters to end in physical gratification—"sometimes with one hand on the keyset, sometimes with two"¹⁷—this virtual polymorphism suggests that MUD cultures can be more open than society at large. In MUDs, as in most online arenas, it is impossible to tell if your communicants are anything like the characters their textual descriptors suggest.

In the early days of cyberspace several cyber-neighborhoods were rocked by discoveries of men masquerading as women and using this facade as a lure to intimacy with "real" women. They took advantage of the fact that many women will talk intimately with another woman in a way they would not do so with a man. The famous case of "Joan," on the CB channel of CompuServe, highlights how people can "change" gender online.

In the mid-1980s, when Joan presented herself to the CompuServe community, she was, she said, a neuropsychologist in her late twenties who had been crippled, disfigured, and left mute by a drunken driver. Despite these appalling injuries, Joan was warm and witty, giving loving support to many in the community. People trusted her quickly, and women especially became intimate with her. Thus many found it shocking when Joan was unmasked as a New York psychiatrist who was not crippled, disfigured, mute, or even female. "Joan" was in fact Alex, a man "who had become obsessed with his own experiments in being treated as a female and participating in female friendships."

Yet what so upset the CompuServe community in the mid-1980s has become routine a decade later. "To me there is no real

¹⁷Turkle, *Life on the Screen*, p. 21.

body," one MUDer told online researcher Mizuko Ito. Online, she continued, "it is how you describe yourself and how you act that makes up the 'real you.' " For her, the "real life" gender of her MUD friends and sexual partners was of little interest. While we certainly must not let ourselves be blinded by false optimism here (the experience of gendered physical bodies cannot be completely overridden with a keyboard) nonetheless, there is something positive here. As McRae notes: if online, boys can play at being girls, and gays can play at being straight, and vice versa, then in cyberspace " 'straight' or 'queer,' 'male' or 'female' become unreliable as markers of identity".¹⁹ The point is that since in cyberspace labels cannot be easily verified, their determining power is reduced. The concept of gender, while not wholly up for grabs, is at least partially decoupled from the rigid restrictions so often foisted on us by the form of our physical bodies. Here is a space that offers, even if only temporarily and in very truncated form, a chance to at least get a glimpse at other ways of being.

MUDs may also serve a genuinely therapeutic role. In her book *Life on the Screen* Turkle describes a number of people who have used MUD personae as proxies in their struggles with very real psychological problems. Robert, a college freshman whose life had been severely disrupted by an alcoholic father, turned to MUDing as an escape from the trauma and chaos of his life, at one point spending more than a hundred and twenty hours a week online, eating and even sleeping at his computer. But things took a more serious turn when he accepted administrative responsibilities in a new MUD that turned out to be the equivalent of a fulltime job. Building and running a complex online world is a task requiring considerable administrative skills and through the experience of overseeing the MUD Robert gained a new sense of control in his life. Furthermore, he was able to use the MUD as a place to talk about his personal feelings in a constructive way, thereby facilitating better relationships outside the MUD. As he

¹⁹McRae, "Flesh Made Word," p. 79.

later told Turkle: "The computer is sort of practice to get into closer relationships with people in real life."²⁰

I am reminded here of a kind of therapy popular in the late seventies. Known as "psychodrama," patients would role-play various scenarios about their own and their family's lives. In child abuse therapy also, role-play is commonly used—often the children act out scenarios with dolls or other toys. Of course not all MUD experiences are positive. For some, the doors of digital perception open only to escapist delusion, and even addiction. "When you are putting in seventy or eighty hours a week on your fantasy character," says Howard Rheingold, "you don't have much time left for a healthy social life."²¹ Or for much of anything else.

What could be more pathetic than the declaration by one MUDer that "this is more real than my real life"?²² One friend of mine almost lost his long-term relationship when he became so obsessed with the online world of the LambdaMOO he was spending more time with his friends "there" than with his "real life" love. But in this sense, again, MUDs are not unique. All fantastical activities—be it playing Dungeons and Dragons, going to Trekkie conventions, snorting cocaine, or drinking alcohol—are open to abuse. Of course MUDs pose the additional problem that they are readily accessible twenty-four hours a day. As a "drug" they are a most convenient and very cheap option.

Throughout cyberspace—in MUDs and chat rooms, on USENET groups and IRC channels—netizens around the globe are engaging in psychosocial experimentation and play. On any day, at any time, thousands of people the world over are launching psychic test balloons into this new space of being. Many insist that their lives contain a dimension that is not physically reducible. Embodied or not, "cyber-selves" are real, and the space of their action, though immaterial, is nonetheless a genuine part of reality.

This cyberspace-induced dualism can only intensify. As ever more communications media, businesses, newspapers, magazines,

²⁰Turkle, *Life on the Screen*, p. 203.

²¹Rheingold, *The Virtual Community*, p. 151.

²²Quoted in Turkle, *Life on the Screen*, p. 10.

shopping malls, college courses, libraries, catalogs, databases, and games go online we will increasingly be forced to spend time in cyberspace—whether we want to or not. My godson, Lucien, is growing up with the Internet; he does not know a world without it. His generation (at least in the industrialized world) will hardly have a choice about whether to participate in this new space. One proleptic example: UCLA recently requested that every one of its undergraduate courses have an accompanying Web site. Whether driven by imperatives to cut costs, or by genuine desire to improve the learning environment, education is just one area that will increasingly move online. For Lucien and his friends, cyberspace will be an unavoidable parallel world that they will *have* to engage with.

Before we get too upset about this bifurcation of reality, it is well to remember that those of us born after the mid-fifties have *already* been living with a collective parallel world—the one on the other side of the television screen. We who grew up with *Bewitched*, *I Dream of Jeannie*, *Gilligan's Island*, and *Get Smart*—are we not already participating in a vast "consensual hallucination"? One that, as in *Bewitched*, is deeply imbued with magical qualities (See Figure 1). The collective drama of soap operas and sitcoms—be it the daytime fare of *Days of Our Lives* and *General Hospital*, or the nighttime fare of *Melrose Place* and *Seinfeld*—are these not "consensual hallucinations" which engage tens of millions of people around the world every day of the week? What is the cartoon town of Springfield in *The Simpsons* if not a genuine "virtual world"?

It is well to remember also that throughout human history all cultures have had parallel "other" worlds. For Christian medievals, as we have seen, it was the world of the soul described by Dante. For the ancient Greeks it was the world of the Olympian gods and a host of other immaterial beings—the Fates, the Furies, et cetera. For the Aboriginal people of Australia it was the world of the



Figure 1: The "consensual hallucination" of television has already paved the way for the parallel world of cyberspace.

Dreamtime spirits. And so on. I do not mean to imply here that the Greek gods or the Aboriginal Dreamtime spirits were nothing more substantial than television characters (quite the opposite is true), I only want to point out that a *multileveled reality* is something humans have been living with since the dawn of our species.

With the virtual world of television we in the late twentieth century have once again created another plane of reality; and thereby paved the way for the new dualism of cyberspace. Yet if this dualism between the physical and the virtual worlds is not

something entirely new, for our children and their children it will be greatly magnified. As in the Middle Ages, they will increasingly *inhabit* a two-phase reality.

Entering upon this new age of cyber-dualism we may wish to look afresh at the dualism of the Middle Ages. Can we see ourselves reflected in that distant mirror? Though we must be careful not to fall for glib concordances, Barbara Tuchman's study of the parallels between Dante's century and our own is not without resonances for cyberspace.²³ Much like the cyber-domain today, the medieval afterlife served as a collective parallel world of the imagination.

As with MUDs, the medieval afterlife teemed with nonhuman, half-human, and suprahuman life. Think of Dante's Minos, the demonic judge of Hell, or Geryon, that patchwork creature of man, mammal, and serpent who ferries Dante and Virgil down the chasm to the Malebolge. With his chimeric body and his brightly whorled fur he would be right at home in the FurryMuck. And just look at Hieronymus Bosch's visions of Heaven and Hell. On a small canvas Bosch could conjure an entire virtual world populated by an imaginal cast that would be the envy of any MUD wizard. Moreover, like cyberspace, the medieval afterlife was a place where friends, and even love, might be found. As a guide, teacher, and protector in an often bewildering place, Virgil is surely the paradigmatic virtual friend. And what greater model for virtual love than that between Dante and Beatrice?

Whatever else it is, *The Divine Comedy* is also one of the most truly "fabulous" worlds ever conjured in text. On one level it is a *genuine* medieval MUD. The parallels between *The Divine Comedy* and computer-based virtual worlds have indeed been noted by a number of scholars. According to Erik Davis, both "tend toward baroque complexity, contain magical or hyperdimensional operations, and frequently represent their abstractions spatially."²⁴ As we have seen, *The Divine Comedy* is organized as a

²³Barbara Tuchman, *A Distant Mirror: The Calamitous 14th Century*. New York: Ballantine Books, 1987.

²⁴Erik Davis, "Techgnosis, Magic, Memory, and the Angels of Information." In *Flame Wars: The Discourse of Cyberculture*. Ed. Mark Dery. Durham, N.C.: Duke University Press, 1994, p. 36.

multileveled hierarchy: the nine circles of Hell, the nine cornices of Purgatory, and the nine spheres of Heaven. Dante's journey is an ascent up this ladder. So also in many medieval and combat MUDs; players work their way up through multiple layers of expertise. Virtual ascent through a MUD brings one finally into the "transcendent" class of "wizard"—a cyber-equivalent of Dante's heavenly elect?

Davis has pointed out that one of the very first computer-based virtual worlds, the game *Adventure*, also has resonances with Dante's world. As the first computerized version of *Dungeons and Dragons*, *Adventure* directly inspired the development of the first MUDs. The *Adventure* player's task, rather like Dante's in the *Inferno*, was to negotiate his or her way through a hazardous underground maze of caves, and out to the light beyond. On the way, one would search for treasures and magical spells, solve puzzles, and kill trolls. Computer industry chronicler Stephen Levy has suggested that *Adventure* might also be seen as a metaphor for computing itself. During the game, players cracked the code of this virtual world in much the way that a hacker would crack the code of a computer operating system. Cracking hidden codes in virtual worlds is also a major theme in many cyber-fictions, notably Gibson's *Neuromancer* and Neal Stephenson's *Snow Crash*. So too, Dante scholars stress that the virtual world of *The Divine Comedy* is a complex puzzle of subtle hidden codes.

Cracking these codes, deciphering the multiform patterns both in Dante's world and in the poem that describes it, has become a favorite task of Dante scholars, who comprise, in this sense, a kind of medievalist hacker intelligentsia. Over the last century they have uncovered scores of hidden patterns in Dante's prose and in his world. "These range from relatively accessible insights—[such as] the realization that like-numbered cantos in the *Inferno*, *Purgatorio* and *Paradiso* have important thematic

ties—to truly abstruse discoveries about the positions of critical words or rhymes."²⁵

Patterns have been found in the spatial arrangement of the three afterlife kingdoms, in the symmetrical arrangement of the dream sequences in Purgatory, in the number of lines in each canto, the distribution of longer and shorter cantos, and so on. Beneath the sublime poetics of *The Divine Comedy* lies a dazzling substructure of hidden codes. In recognition of Dante's supreme skill as a code wizard, researchers at Lucent Technologies currently designing a revolutionary Net-based operating system have named their system "Inferno." They are hoping that as cyberspace becomes the primary source of computing resources, Inferno will become the global standard operating system, usurping Microsoft's DOS and Windows. Thus Bill Gates would, so to speak, be dethroned by Dante.

I have suggested that the new cyber-dualism is a development to be welcomed, yet we would do well to consider carefully what cyberspace does and does not enable. More so even than with most new technologies, there is an enormous amount of hype surrounding cyberspace. I have endorsed the view that cyberspace provides a new space for experimentation with various facets of selfhood, but some cyber-enthusiasts go much further. In *Life on the Screen*, Sherry Turkle proposes that in this postmodern age of cyberspace, the unity of the self is an old-fashioned fiction. According to Turkle, cyberspace provides the opportunity for splitting the self into a radical *multiplicity*.

In discussing the notion of multiple selves Turkle draws on the computer concept of "windows," the software paradigm that enables a computer user to be working on several different kinds of files at once, each one (say a spreadsheet, a word processing document, and a graphics file) constituting a separate "window." "In the daily practice of many computer users," Turkle tells us, "windows have become a powerful metaphor for thinking about the

²⁵John Kleiner, *Mismapping the Underworld: Daring and Error in Dante's Comedy*. Stanford, Calif.: Stanford University Press, 1994, p. 9.

self as a multiple distributed system." She then goes on, and I quote at length, for the passage, I think, is key. In cyberspace, Turkle says:

The self is no longer simply playing different roles in different settings at different times, something that a person experiences when, for example, she wakes up as a lover, makes breakfast as a mother, and drives to work as a lawyer. The life practice of windows is that of a decentered self that exists in many worlds and plays many roles at the same time. In traditional theater and in role-playing games that take place in physical space, one steps in and out of character; MUDs, in contrast, offer parallel identities, parallel lives. The experience of this parallelism encourages treating on-screen and off-screen lives with a surprising degree of equality. Experiences on the Internet extend the metaphor of windows—now real life itself [as one of her MUD subjects notes] can be "just one more window."²⁶

It is certainly true in the late twentieth century that most of us must negotiate different roles in our daily lives. To that extent we are all multifaceted beings. But to suggest, as Turkle does, that cyberspace offers "parallel identities, parallel lives," which are equal to our physical lives and identities is going too far. True multiple personalities, such as the famous case of "Sybil" are deeply traumatised people with major psychological dysfunction. To play at being a singing fish or the opposite sex can indeed be a positive experience, but to believe that these experiences are *equal* to life in the flesh is delusion. Elsewhere in her book, Turkle tells us that "some [MUDers] experience their lives as 'cycling through' between the real world and a series of virtual worlds."²⁷ For some players, apparently, these cyber-selves become so "real" they question the privileged position of the physical self. As one of her subjects puts it: "Why grant such superior status to the self that has the body when the selves that don't have bodies are able to have different kinds of experiences?"²⁸

²⁶Turkle, *Life on the Screen*, p. 14.

²⁷Turkle, *ibid.*, p. 12.

²⁸Turkle, *ibid.*, p. 14.

One answer is that "the self that has the body" *really* dies. If a cyber-self is killed, or even if a host computer crashes and a whole MUD world is obliterated (as happens on occasion), it can always be rebooted, or you can create a new character and start again. That may not be quite the same experience as with a previous character, but it is a far cry from heart-stopping physical death. Moreover, the self with the physical body *really* gets sick, it *really* feels pain, and crucially, it is bound into a social network of other physical selves whom it cannot simply shut out by logging off the system. People *do* sometimes walk away from their physical lives and disappear, but that is rare for precisely the reason that in the physical world we are *physically dependent* on one another for care and support. Social bonds established in cyberspace can be, and often are, deep and powerful, but these "parallel lives" are *not* equivalent to the lives we experience with our physical bodies.

What is perhaps more troubling about such claims, as philosopher Christine Wertheim has pointed out, is that the notion that we can totally *remake* our "selves" online obscures the very significant difficulties of achieving real psychological change.²⁹ The notion that we can radically *reinvent* ourselves in cyberspace and create whole "parallel identities" suggests that the very concept of selfhood is endlessly malleable and under our control. In Turkle's vision, the self becomes a kind of infinitely flexible psychic plasticine. What such a vision belies is the enormous amount of psychological shaping and forming that is enacted on an individual by his or her upbringing, by his or her society, and by his or her genes. This shaping, much of which occurs when we are very young, cannot generally be overthrown or reengineered except by an enormous amount of psychological hard work. While I believe wholeheartedly that each of us does have the power to change our "selves" profoundly, real selftransformation is extraordinarily difficult—which is why Psychotherapy is usually such a long process.

²⁹Christine Wertheim, Unpublished correspondence with the author.

Role-playing at being a squirriloid or a Klingon, whatever its genuine value, is simply not an identity-changing experience. "I"—that is, my "self"—can role-play any number of different personae online and off, but that does not mean I become fragmented. In every one of these situations I am still me, unless I become a true split personality like Sybil, in which case I am likely to be committed. Moreover there is the problem that if we come to really believe that sane people can be split personalities, then how are we going to apportion responsibility? If one of my "alters" commits murder, does that mean "I" am responsible? Who would go on trial? Surely our goal should not be to encourage the idea of self-fragmentation, but rather to learn to better contain paradoxes within the *one* self. Certainly there are parts of me that disagree with one another, but I consider it a sign of my growing maturity that I no longer seek total internal unity on every issue.

Life in the physical body—what MUDers so quaintly refer to as RL (i.e., real life)—is not the totality of *real life*. In our materialistic age, the inner life of mind *has* generally been accorded too secondary a place in our discourse about reality. But in rehabilitating "mind" back into our conception of the real it will not do to make the *opposite* mistake of denying the unique and irreplaceable role of the body. In a sense, all this is just another iteration of the age-old mind-body tension in Western culture. For the past several centuries the body has been decidedly to the fore in our thinking, which is hardly healthy; yet we ought also to be wary of letting the pendulum swing too far back in the other direction. Life in the flesh is *not* "just another window," and we ought strongly to resist efforts to promote it as such.

As I see it, the value of cyberspace is not that it enables us to become multiple selves (a concept that seems pathological), but rather that it encourages a more fluid and expansive vision of the one self. Perhaps this is what Turkle means by a "decentered self"? The point is that if we allow (as I believe we must) that some part

of my self "goes" into cyberspace when I log onto a MUD or onto the Net, then we must also acknowledge that some part of my self also "goes" into every letter I write. If you like, my self "leaks out" in the letters and stories that I write, and even in the phone conversations I have. If I carry on a long-term correspondence by the old-fashioned post (as I have been known to do), there is a sense in which the "I" of those letters is also an extension of me. It, too, becomes a kind of virtual alter ego. As Christine Wertheim puts it, even offline "I am extending myself all over the place."

All this is not to deny that cyberspace provides a *new space* for such extensions of self—one that is, moreover, highly public. It is only to point out that the kinds of self-extensions that occur online also take place in our lives offline. To be sure, this is not generally in such dramatic forms as cyberspace allows, but these extensions or extrapolations of self are going on nonetheless.

One question that arises, then, is *where does the self end?* If the self "continues" into cyberspace, then as I say, it also "continues" through the post and over the phone. It becomes almost like a *fluid*, leaking out around us all the time and joining each of us into a vast ocean, or web, of relationships with other leaky selves. In this sense, cyberspace becomes a wonderful metaphor for highlighting and bringing to our attention this crucial aspect of our lives. As Wertheim points out, the Net makes *explicit* a process that is already going on around us all the time, but which we in the modern West too often tend to forget. By bringing into focus the fact that we are all bound into a web of interrelating and fluid selves, the Internet does us an invaluable service.

Another way of looking at this is to say that every one of us occupies a "volume" of some kind of "self-space," a space that encompasses us as profoundly as the physical space that modern science describes. This collective "self-space" this communal ocean of leaky selves, binds us together as psychosocial beings. I am well aware that in this materialistic age, such an assertion will

be greeted with derision in some quarters. Neuroscientists and philosophers such as Daniel Dennett and Paul and Patricia Churchland, who claim that the human mind can be fully explained in terms of materialistic neurological models, will no doubt scoff at any notion of "self-space." But I suggest that something like this is precisely what we *experience* as thinking, emoting beings. Just such an idea is indeed encoded in many religious and mythological systems.

I do not mean to claim here that "Self-space" exists *independently* of physical space, as something ontologically separate. Obviously, my "self" only exists because there is a physical body in which it is grounded. At the same time, "I" am not restricted purely to the space of that body. As Descartes recognized, there is a sense in which I am first and foremost an immaterial being. After three hundred years of physicalism, cyberspace helps to make explicit once more some of the *nonphysical* extensions of human beingness, suggesting again the inherent limitations of a purely materialist conception of reality. Again, it challenges us to look beyond physicalist dogma to a more complex and nuanced conception both of ourselves, and of the world around us.

Chapter Seven

CYBER SOUL - SPACE

Let us begin with the object of desire. It exists, it has existed for all of time, and will continue eternally. It has held the attention of all mystics and witches and hackers for all time. It is the Graal. The mythology of the Sangraal—the Holy Grail—is the archetype of the revealed illumination withdrawn. The revelation of the graal is always a personal and unique experience. . . . I know—because I have heard it countless times from many people across the world—that this moment of revelation is the common element in our experience as a community. The graal is our firm foundation. ¹

This statement would probably seem at first glance an expression of religious faith. With its focus on the Holy Grail, surely the "community" referred to must be Christian. The clue that it is not is in the second sentence. What is the word "hackers" doing

Chapter Eight: **CYBER - UTOPIA**

We have seen the extremes that result from dreams of cyber transcendence; but there is also a more prosaic, more human side to “heavenly” cyber-dreaming. As noted in the opening chapter, many champions of cyberspace proffer this new digital domain as a realm in which we may realize a better life here on earth. This side of “heavenly” cyber-dreaming is concerned not with escapist visions of immortality and Gnostic omniscience, but more pragmatically with the potential of cyberspace to enhance mortal life. In particular, cyberspace is promoted as a space in which connection and community can be fostered, thereby enriching our lives as *social* beings. In these visions, cyberspace becomes a place for the establishment of idealized communities that transcend the tyrannies of distance and that are free from biases of gender, race, and color. In other words, this is a dream of cyberutopia.

The promise of utopian community is indeed one of the primary appeals of cyberspace. At a time of widespread social and familial breakdown in the Western world, increasing numbers of people suffer from isolation, loneliness, and alienation. In this climate, says commentator Avital Ronell, “virtual reality, artificial reality, dataspace, or cyberspace are inscriptions of a desire whose

principle symptom can be seen as the absence of community.”¹ The Internet, with its vast global web, beckons us all with a vision of friendship and the hope of inclusion in a wider social whole.

Howard Rheingold, one of the founders of the WELL (an early and pioneering online community based out of San Francisco), is one who believes that cyberspace is already creating better communities. In his landmark study of online culture, *The Virtual Community*, Rheingold recalls the utopian prediction of the legendary cyber-pioneer J. C. Licklider that “life will be happier for the online individual because the people with whom one interacts most strongly will be selected more by commonality of interests and goals than by accidents of proximity.” Speaking of his WELL colleagues, Rheingold notes that “my friends and I sometimes believe we are part of the future that Licklider dreamed about, and we often can attest to the truth of his prediction.”² Rheingold is no naif, but he does suggest that cyberspace could help return us to the practices and ethos of an earlier era. Harking back to the time before we relinquished our public spaces to corporate developers and the electronic media, he writes that “Perhaps cyberspace is one of the informal places where people can rebuild the aspects of community that were lost when the malt shop became a mall.”³

High-technology entrepreneur Esther Dyson also believes that cyberspace can foster the development of more utopian communities.

The Net offers us a chance to take charge of our own lives and to redefine our role as citizens of local communities and of a global society. It also hands us the responsibility to govern ourselves, to think for ourselves, to educate our children, to do business honestly, and to work with fellow citizens to design rules we want to live by.⁴

According to Dyson, “our common task is to do a better job with the Net than we have done so far in the physical world.”

¹Avital Ronell, “A Disappearance of Community.” In *Immersed in Technology: Art and Virtual Environments*. Ed. Mary Anne Moser, with Douglas MacLeod. Cambridge, Mass.: MIT Press, 1996, p. 119.

²Howard Rheingold, *The Virtual Community: Homesteading on the Electronic Frontier*. San Francisco: HarperPerennial, 1994, p. 24.

³Rheingold, *ibid.*, p. 26.

⁴Esther Dyson, *Release 2.0: A Design for Living in the Digital Age*. New York: Broadway Books, 1997, p. 2.

Dyson believes that is possible: “Because there will be so much information, so much multimedia, so many options [online] people will learn to value human connection more, and they will look for it on the Net,”⁵

For a paradigmatic expression of cyber-utopian optimism we might turn to MIT Media Lab director Nicholas Negroponte. At the end of his book *Being Digital*, Negroponte writes:

Today, when 20 percent of the world consumes 80 percent of its resources, when a quarter of us have an acceptable standard of living and three quarters don't, how can this divide possibly come together? While the politicians struggle with the baggage of history, a new generation is emerging from the digital landscape free of many of the old prejudices. These kids are released from the limitation of geographic proximity as the sole basis of friendship, collaboration, play, and neighborhood. Digital technology can be a natural force drawing people into greater world harmony.⁶

Again, David Noble reminds us that there is nothing new about this kind of technoutopianism. Ever since the sixteenth century champions of technology have been touting it as a key to the creation of more “heavenly” communities. Johann Andreae, for example, envisaged the utopian city of Christianopolis, in which the technical arts were assiduously practiced by all citizens. Like many at the time, Andreae believed the time was nigh for the age of perfection promised by the book of Revelation. The advance of science and technology he saw as essential preparation for this millennial age. Likewise, in the City of the Sun envisaged by the Calabrian heretic Tommaso Campanella, every citizen was to be taught technical skills, “Intended to give them the wisdom needed to understand, and to live in harmony with, God's creation.”⁷ Throughout the sixteenth and seventeenth centuries, utopian visionaries imagined that science and technology could

⁵Dyson, *ibid.*, p. 4.

⁶Nicholas Negroponte, *Being Digital*. New York: Vintage Books, 1996, p. 230.

⁷Quoted in David F. Noble, *The Religion of Technology: The Divinity of Man and the Spirit of Invention*. New York: Alfred A. Knopf, 1997, p. 40.

p.284

help to precipitate a more perfect era in which Christians would live more harmonious and virtuous lives.

The very word “utopia” derives from the visionary community of the same name imagined by the Englishman Thomas More. Like Francis Bacon’s “New Atlantis,” More’s original utopia was an idealized community located on a remote island, far away from the corrupting influence of a decadent world. In both cases inhabitants had created for themselves a kind of earthly paradise, made possible by their piety, their communal spirit, and crucially, by their devotion to the technical arts.

With these utopian visions we witness the emergence of the idea that man, through his own efforts, can create a New Jerusalem here on earth. All these visions were profoundly Christian in intent, inspired, as one commentator has put it, by a “yearning to bring heaven down to earth.”⁸ Rather than having to wait until the Last Judgment for the advent of a perfect community, Renaissance visionaries suggested that men could create heavenly cities themselves, by their application of science and technology. Technology would thus become a medium for salvation. Again and again in the age of science, technology has been viewed as a salvific force, a key to a better, brighter, more just world. Noble and Mary Midgley have both traced this techno-utopian spirit through modern Western culture, where it can be found flourishing today in the NASA space community, in the genetic engineering community, and among advocates of artificial intelligence. But if techno-utopianism is by no means a new phenomena, among cyberspace enthusiasts it reaches a new crescendo.

MIT’s William Mitchell is just one who has championed cyberspace as a potentially utopian realm by drawing a parallel between this digital domain and the agora of ancient Athens.⁹ As the center of the original democracy, the agora was the place where Athenian citizens met to discuss ideas for the common good. In

⁸Quoted in Noble, *ibid.*, p. 38.

⁹William J. Mitchell, *City of Bits: Space, Place, and the Infobahn*. Cambridge, Mass.: MIT Press, 1996.

this nonhierarchical space all were equal and everyone could express their opinions freely. (Everyone, that is, who qualified as a citizen, which in practice meant about two thousand of the city's most prosperous men.) Mitchell, among others, suggests that cyberspace can again serve as an egalitarian public space.

He points to the fact that in cyberspace we are freed from the normal social markers of physical space, such as suburb names and zip codes. Considering what people pay to live in the 90210 zip code, so that they can formally reside in Beverly Hills, there is no doubt that what Mitchell calls "the geocode" can be a powerfully stratifying force in our perceptions of one another. Whether consciously or not, we do often make judgments based on social markers. Saying one lives in the Bronx, for example, is likely to invoke an entirely different set of expectations to saying one lives in Manhattan. As Mitchell writes: "In the standard sort of spatial city, where you are frequently tells who you are. (And who you are will often determine where you are allowed to be.) Geography is destiny."¹⁰ Online, however, no one knows if you come from Beverly Hills or the backwoods, and they cannot judge you as such. In Mitchell's words, "the Net's despatialization of interaction destroys the geocode's key. [In cyberspace] there is no such thing as a better address, and you cannot attempt to define yourself by being seen in the right places in the right company."

Mitchell goes too far, perhaps, when he says there are no "better addresses" in cyberspace—a prestigious ".edu" address (such as *harvard.edu* or *mit.edu*) carries considerably more cache online than a CompuServe or America Online address. Yet he is right that cyberspace cuts across many traditional "geocode" boundaries. As a potentially egalitarian arena, consider the following two examples.

In March 1998, Stephen Hawking gave a talk at the White House hosted by the president and the First Lady. Piped to the nation by CNN, the world's most famous living physicist

¹⁰Mitchell, *ibid.*, p. 10.

expounded on his ideas about the future of science. In the audience were several Nobel Prize winners and a number of America's leading research scientists, several of whom were invited to ask Hawking questions. But along with these luminaries, questions were also invited from the Internet, and ordinary citizens also took part in the event. One should not make too much of such obvious PR exercises; nonetheless the evening was a small indication of the democratic potential of cyberspace, a potential further illuminated by our second example.

At the Horse Shoe Coffeehouse in San Francisco, Internet access can be obtained at fifty cents for twenty minutes. Around the country, similar venues are springing up, providing public spaces where people who may not have Net access at home can surf the Web, participate in online forums, send and collect email. One San Franciscan who avails himself of the Horse Shoe's facilities is a local squatter named CyberMonk. As one Internet observer has noted, "the combination of real and virtual space afforded by the coffeehouse allows CyberMonk to use it as a living room, telephone, and mailbox." Although in his physical world CyberMonk is marginal, in cyberspace he becomes an equal member of the digital society. With no fixed abode in the real world, in the ephemeral domain of cyberspace he has as solid an address and presence as any other citizen.

The notion of an "electronic agora" also underlies the concept of electronic town hall meetings, touted and initiated during the 1996 U.S. presidential campaign. Vice President Al Gore in particular would have us believe that cyberspace provides the cure to America's democratic decline. No longer need citizens feel left out of the process of government, say the new cyber-agoras; now via the miracle of the modern web we can be involved in public discussions and communal policy decisions. In cyberspace we would thus realize a true democracy, a dream that has historically (low voter turnout, etc.) has so evidently failed in our physical communities.

For sloting people especially, cyberspace beckons as a place where they might build a better life." For the first time in several generations, Americans graduating from high school and college are finding they are Liiillkelv to have a higher standard of living tliaii their parents. Most will be lucky to match their parents. Witli "real life" prospects getting tougher by the year, some young Americans are turning to cyberspace instead. The locus of their dreams, as Sherry Turkle has chronicled, are often MUD worlds. One disspirited twenty-something told Turkle bluntly, "MUDs got me back into the middle class." He did not mean this literally; he was referring only to the online world of his MUD where he and his friends are energetic and productive cyber citizens.

Another of Turkle's subjects, josh, explained his life in the physical world in the following bleak terms: "I live in a terrible part of town. I see a rat hole of an apartment, I see a dead-end)'oh, I see AIDS." In his MUD world, on the other hand, Josh said: "I see friends, I have something to offer, I see safe sex." There, as an expert at building virtual cafes, he is a respected cyber-entrepreneur. According to Turkle, "MUDs offer josh a sense of participation in the American dream." He hopes that one day when MUDs become commercial enterprises he will be able to turn his cyber-building skills into a real living. For young people like this Turkle notes, MUDs provide "a sense of a middle-class peer group."

MUDs may not be paradise, but for an increasing number of America's youth cyberspace seems a more appealing place than the reality of their physical lives. As a space that is free from middle-class slump, and is immune from the problems of urban decay and social disintegration plaguing so many "real life" communities, cyberspace beckons as a decidedly more utopian domain. On the other side of the modem, these young men and women see a space to meet and date in safety, a place where they

p.288

can have the kind of power and significance increasingly beyond reach in their physical lives.

Yet for all the optimism of cyberutopians the digital domain is considerably less “heavenly” than many of its champions would have us believe. While it is true that cyberspace does enable interaction between people who would not normally have contact in their physical lives, there are already hints that this social leveling is not as universal as we are often told. In short, it is far from clear that the “pearly gates” of cyberspace are equally open to all.

There is an intriguing historical parallel here that may help to cast light on the future of cyber-utopianism. This may seem a surprising analogy, but literary scholar Brian Connery has shown that many features of the new cyber-utopianism were presaged in the first European coffeehouses of the seventeenth century. Like cyberspace, these early coffeehouses also provided a new social space in which people could mix across class lines, enabling nobles and tradesmen to rub shoulders. Here too, Connery says, the coffeehouses could be seen as “reincarnations” of the classical agora. In this respect they constituted a kind of utopian social experience, which, like cyberspace, held out the promise of a more equal society for all. In considering cyberspace and its potential as a utopian social space, the history of the coffeehouse offers an illuminating case study.

Within the new coffeehouse culture what mattered most was not wealth or title, but a quick wit and a keen grasp of the latest news. As in cyberspace today, topical information was a key commodity, and after the first newspaper was founded in 1665 coffeehouses became primary places for the public dissemination of news. After the establishment of the penny post in 1680 coffeehouses also became important locations for delivery of mail. Prior to this, mail had been hand-delivered by porters and was a service available only to the rich. By the 17th century a postal service was available to all.

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several of news and mail, coffeehouses served a similar social

CYBER - UTOPIA 289

It went on to the Internet today with its online news services and its electronic mall. Indeed, Connery says, these venues "served as laboratories for experimentation" with many of the freedoms that would be enshrined in laws and constructions later in the century -including "freedom of the press, freedom of association and assembly, freedom of speech."

Yet the genuinely democratizing trends opened up by the coffeehouses would prove short-lived. From the start, dissenters objected to the mixing of classes that occurred there, and in truth there was something challenging about a place where, as one seventeenth-century polemicist put it, "a worthy Lawyer and an errant Pickpocket" could meet on equal footing. But it was not just the forces that worked against the egalitarian spirit of the coffee-

houses; internal forces also would play a role in its demise.

It is here, Connery suggests, that the history of the coffeehouse "holds a potential warning for those who dream that the Internet will create utopian discursive communities."¹⁵

Two forces in particular worked against the new egalitarian spirit: "the reestablishment of authority" and "the institution of exclusivity." Both suggest lessons for cyberspace today. In theory, anyone could speak at a coffeehouse discussion-in principle all voices were equal -but in practice most places soon became dominated by the voices of a few, or even just one star speaker. Rather than condemning such behavior, proprietors used these star clients "as a draw for other patrons," a strategy that Connery notes is much the same as "online services [today] who tout the participation of stars from Hollywood or the music industry."

Anyone who has participated on USENET groups knows that all voices are not equal, with discussion often dominated by a small cadre of regular vociferous posters. "Newbies" to established newsgroups often get a very chilly reception, and at least one popular newsgroup is famous for its harshly inequitable environment. The case of alt.folklore.urban, or AFU as it is known, makes for an

p.290

interesting example of 'tist how quickly "atitlori is indeed being reestablished in cyberspace.

If anywhere in cyberspace ought to be egalitarian, AFU should be. This is a newsgroup devoted to debunking myths and 11 urban legends." Discussions range over a vast spectrum, froi-n old

favorites like alligators in the sewers to reports of high-tech Japanese toilets and rtii-nors about the CIA. As the group's Web site explains, AFU is "a great place to get a reality check on anything that I a friend' told you, or to compare notes about odd things." Yet despite its populist mission, harsh treatment of new-bles by AFU regulars is legendary. Here is one netizen's reaction: "Tell you what scares the shit out of me on the Net, AFU. Now there's a newsgroup to dread. Posting as a newbie there should be one of those (often fatal) moves grouped under the same heading as accidentally shooting yourself through the private parts." AFU regulars pointedly set out to bait newbles with mock postings known as "trolls," a form of mockery that holds up to public ridicule those 'th the inner subtleties of the culture. Michele not conversant wl I I Tepper," herself one of the AFU elite, has pointed out that all social groups need internal rules to maintain group identity; nonetheless she notes that the virulent atmosphere of AFU suggests that equal opportunity of expression is not a high priority for this cyberspace community.

In AFU we can also witness the second anti-democratizing trend identified by Connery in coffeehouse culture: "the institution of exclusivity." Already the publicly accessible AFU newsgroup has spun off two exclusive, invitation-only lists. In fact, many newsgroups now have exclusive spin-off lists that are not open to the public. Connery tells us that a similar move also occurred in the London coffechouses, as early as the second decade of the eighteenth century. BY that time regular denizens had begun to 'thdraw froi-i-i the lioi pollo' 'iito exclusive private rooms.

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Eventually, these select gatherings led to the establsliiii-ieit of I

p.291

CYBER - UTOPIA-291

private gentlemen's clubs. According to Conner, a similar "development may be inevitable with discussion lists and newsgroups" on the Internet.

It is well to remember that until very recently the digital agora was in fact an extremely exclusive place. Up until 1993 (when "browser" software for the World Wide Web first became available), few people of diverse ages and research settings

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had access to the Net. Even now there are many people who still cannot afford an appropriate computer and a monthly Internet access fee. And that is true even in rich countries like America. If cyberspace is to become a truly equitable place then we are going

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to have to face the question of how to ensure that everyone has equal access. Not just people who are well-off, but also those who

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it. Moreover, if we are serious about creating some kind of arena for a cyber-utopia then the rich developed world is going to have to take seriously the task of making the Internet available to developing countries as well.

One aspect of early coffeehouse culture that was never egalitarian was its gender mix. Whatever else may have been in flux, male authority was maintained there, and few women participated in this scene. Cyberspace is accessible to women, but how much, really, is the "second sex" welcome? Although the wired world does offer genuine opportunities for women, all is not rosy in this supposed paradise of gender dissolution. Behind the utopian rhetoric, the bits can still pack a hefty sexist bite. Voluntaries have been written about gender and cyberspace, and it is beyond the scope of this book to give more than a passing glimpse at the subject. But let us consider just one example that I think is particularly illuminating—a case of online sexual harassment.

Few women are more acquainted with this subject than Stephanie Brall. In 1993 Brall was the target of intense online harassment that for several months made her cyber-life hell and finally spilled over into her "real life." The incident began when

p.292

292 - THE PEARLY GATES OF CYBERSPACE

Brall dared to stand up in support of a young woman whom she thought "as being unfairly treated on the USENET group alt.zines, a group devoted to discussion of alternative magazine or zine culture. The young woman had posted a message requesting to talk about "Riot Grrls" zines-Riot Grrls being a subculture of politically astute young women with punk-rock cultural leanings. Given the nature of the newsgroup, and the fact that "zines"

typically about alternatives to mainstream culture, it was a perfectly natural request, but some men on the group vehemently protested. Not only did they not want to discuss grrl-culture, they didn't want anyone else on the group to either. One hostile male suggested the young woman start her own group: alt.grrl.dumbcunts.

Enraged at this inequity, Brall weighed in with comments defending the young woman's right to speak, comments that, by her own admission, were loud and opinionated. What ensued was a flame war. More insidiously, Brall became the target of online sexual harassment. Soon, "reams of pornographic text detailing gang rapes were pouring into her mailbox. Yet although she had allies on the original newsgroup, many quickly tired of the flame war and became unsympathetic to her plight. Some even said that by complaining about "Mike" (the harasser), she and her allies were censoring him.

Events reached a head when Brall received a message from Mike at a separate private e-mail address. This aggressive stranger had somehow accessed what should have been protected information about her personal life. Chillingly, the message read: I know you're in Los Angeles. Maybe I can come over and fix your

plumbing." Now Brall began to fear for her physical safety. The offensive only ended when Mike's guard slipped and Brall was able to sleuth out his private e-mail address. After that she never heard from him again.

The story ends well, but happy endings are not all that matter, and the case reveals some rather disturbing undercurrents in

p.293

C Y B E R - U T O P I A, 2 9 3

cyber-utopia. Brall's case may have been extreme, but online hostility toward women is not unusual: it is a common reason women give for not wanting to participate in many cyberspace forums. In the face of online harassment women are often told to just fight back," but that may be easier said than done. As Brail points out, "it is easy advice for a loud-mouthed, college-aged know-it-all who has all the time in the world, but does it apply to real, working women who don't have the time and luxury to 'fight back' against online 'jerks'?" Moreover, why should women have to fight back as "the price of admission"? "Men don't usually have to jump through a hoop of sexual innuendo and anti-feminist backlash simply to participate." For many women it is so much easier to just log off.

And that is the primary reason for concern about rampant cyber-misogyny. Under the guise of the First Amendment the cyber-elite has mounted a mantra-like defense of freedom of speech, this supposedly core feature of cyber-utopia. But one has to ask: Freedom of speech for whom? Not, apparently, for the young woman who wanted to talk about Riot Grrl zines. And not, apparently, for Brail, speaking in her defense. When women who make postings to alt.feminism are called "bitches" by angry young men, is that freedom of speech? When, on X-Files newsgroups, women are told that their lusty postings in praise of David Duchovny are obscene, is that freedom of speech? When, on Star Trek newsgroups, women are flamed for expressing dissatisfaction with the female roles in the series, is that freedom of speech? "How many women," wonders Brall, "have stopped posting their words because they were sick of constantly being attacked for their opinions?" Thus we must ask, who is this cyber-utopia really going to be for?

Women aren't the only ones encountering obstacles in the digital domain. Similar barriers also confront homosexuals, nonwhites, and non-Anglos. The heavenly vision of a place

p.294

294 THE PERILY OF CYBERSPACE

men of all nations will walk in harmony" is one of the prime fantasies under which cyberspace is being promoted, yet despite many cyberspace enthusiasts' public paeans to pluralism, all cultures are not equally welcome in cyberspace. On the contrary, commentator Ziauddin Sardar suggests that what we are seeing is not so much a space for vibrant pluralism but a new form of Western imperialism.

Sardar notes that much of the rhetoric used by cyberspace champions is drawn from the language of colonization. Cyberspace is routinely referred to as a "new continent" or a "new frontier" and its conquest and settlement often compared to the conquest and settlement of the "New World." A typical example comes from Ivan Pope, editor of the British cyberspace magazine *3W*, who described it as "one of those mythical places, like the American West or the African Interior, that excites the passions of explorers and carpetbaggers alike." The headline for a cover story from the San Francisco-based cyberpunk journal *Mondo 2000*

declared simply, 'THE RUSH IS ON! COLONIZING CYBERSPACE.'

The theme of colonization is also reflected in a widely quoted document titled "Cyberspace and the American Dream: A Magna Carta for the Knowledge Age," which was put together by right-wing think tank the Progress and Freedom Foundation, and based on the ideas of a group that included Esther Dyson and Alvin Toffler. This cyber Magna Carta states bluntly, "what is happening in cyberspace ... [calls to mind] the spirit of invention and discovery that led ... generations of pioneers to tame the American continent." In a similar vein, the Electronic Frontier Foundation's John Perry Barlow has written that "Columbus was probably the last person to behold so much usable and unclaimed real estate (or unreal estate) as these cybernauts have discovered."

But of course the "real estate" of the Americas was claimed. The "taming" of the American West that the writers of the cyber Magna Carta would emulate also entailed the "taming" (and often

p.295

CYBER-UTOPIA-295

erasure) of dozens of other cultures. According to Sardar, that is also the hidden danger of cyberspace. Rather than embracing other cultures and their traditions, he suggests that "cyberspace is particularly geared towards the erasure of all non-Western histories as he explains: "If Columbus, Drake and other swash-

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buckling heroes of Western civilization were no worse than pioneers of cyberspace, then they [too, by association] must have

been a good thing. The implication, Sardar notes, is that the colonized people "should be thankful" for all the "wonderful" technologies the Westerners brought. It is certainly worth asking, as Sardar does, why is it that at a time when colonial frontier metaphors are being so critiqued elsewhere they should be embraced by champions of cyberspace.

Whatever this cyberspatial frontier rhetoric implies about our past, perhaps more insidiously it hints at an ongoing cultural imperialism. A frontier, by definition, is a place where things are being formed anew. And newness is exactly what many cyberenthusiasts prize above all else. For too many of them, history is of little interest, because what really matters is the future, a glorious unprecedented future that will supposedly emerge Athena-like from their heads. In such an atmosphere of future-worship, Sardar says, there can be no genuine respect for the traditions of any culture. With the world constantly being formed anew at the digital frontier, traditional ways of thinking and being are all too easily reduced to quaint curiosities: "Other people and their cultures be-

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come so many models', so many zeros and ones in cyberspace. It is a process that Sardar decries as "the intensification of the world."

On a global scale, moreover, cyberspace provides unprecedented opportunities for "corporations [to] trade gigabytes of information about money and death." Let us never forget the role of the military in the initial development of cyberspace, and their continuing presence at the forefront of this technology. It is riot

p.296

296 THE PEARLY GATES OF CYBERSPACE

It is significant that the first-ever application of intercontinental battle simulation was for air intercontinental battle simulation." Beyond the military

of the greatest users of cyberspace is the financial industry, and it is already known that billions of crime dollars slosh undetected through the world's computer networks, dissolved into apparent legitimacy by the purifying power of silicon. If, as Sardar and others suggest, "cybercrime is going to be the crime of the future," then rather than bringing to mind the New Jerusalem, one might wonder if cyberspace will be more like a new Gomorrah."

Thinking about the potential of cyberspace, we might consider all this in Dantean terms. As a man of the Middle Ages, Dante lived before the time when technology came to be seen as a force for creating a New Jerusalem. In his time, human action tended to be associated more with the creation of Hell. One of the most powerful messages of *The Divine Comedy* is that Hell is a place we humans make for ourselves. As I noted in Chapter One, in the medieval cosmos Hell was the space literally within the sphere of human activity, and it is no coincidence that Dante placed it inside the earth. Metaphorically speaking Dante's *Inferno* was the inner space of sick men's minds, a place of vanity, delusion, ego, and self-obsession. The poor souls trapped there were doomed to spend eternity wallowing in the human race's collective psychic disease and excrement.

Now cyberspace too is an inner space of humanity's own making, a space where the vilest sides of human behavior can all too easily effloresce. In the past few years neo-Nazi and skinhead sites have proliferated on the web, while USENET groups make

it all the easier for racists and bigots to spread their messages of hatred.

Surfing such sites, with their openly violent, antisocial, and antigovernment diatribes, is truly to descend into a new circle of Hell. To say nothing of pornography for which the Web has undoubtedly been the greatest boon since the invention of photography. As Sardar notes, the underbelly of cyberspace is indeed "a

8. 1: Detail from Arezzo Chapel Last Judgment. Might cyberspace become less like Heaven, and more like Hell?

p.298

298. THE PEARLY GATES OF CYBERSPACE

grotesque soup." One is reminded here not so much of Paradise, but, as in Figure 8. 1, of the other pole of ideal space. In short, while contemporary exponents of the Renaissance tradition see cyberspace as a potentially lovely place, looking back to the earlier medieval tradition, there is even potential, if we are not careful, for cyberspace to be less like Heaven and more like Hell.

BEYOND CYBER - UTOPIA

Yet having recognized the inadequacy of much cyber-utopian rhetoric and the not insignificant inequities with many cyberspace communities today, I would like to end this work on a positive theme, for it seems to me that in spite of its problems cyberspace does offer us an essentially positive vision. There is a sense in which I believe it could contribute to our understanding of how to build better communities. I do not want to use the word "utopia" here, because that concept has distinctly Christian undertones, and I want to finish on a note that is less Christocentric, less Eurocentric, and more universal. I want to return here at the end of our story to an idea that was introduced at the end of Chapter Six—the notion of cyberspace as a network of relationships. It is this inherently relational aspect of cyberspace that I believe can serve as a powerful metaphor for building better communities.

By its very nature, cyberspace draws our attention to something that has been implicitly realized by most myth systems and traditional religions: the world-overall way in which human beings are bound together into communities by networks of relationships. Since cyberspace itself is a network of relationships, it epitomizes qualities that are fundamental to the creation and maintenance of strong communities. This point is crucial, and it warrants our attention.

Whatever people are doing in cyberspace, and whatever its

p.299

C Y B E R - U T O P I A - 2 9 9

content, cyberspace itself is a network of relationships in a number of different senses. Firstly, at its underlying material level it consists of a physical network of computers linked together by phone cables, optic fibers, and communications satellites. But along with this physical network, there is also a vast nonphysical network, for many of the relationships that constitute cyberspace are purely logical links, implemented only in software. On both levels, the very essence of cyberspace is relational: It is a set of relationships between hardware nodes on the one hand, and on the other hand between software entities such as Web sites and Telnet sites.

On both levels, cyberspace can serve as a metaphor for community, because human communities also are bound together by networks of relationships; the kinship networks of our families, the social networks of our friends, and the professional networks of our work associates.

Within any modern community there are also networks of interrelated businesses, networks of social services, networks of churches, networks of health care providers, and so on. Like cyberspace, these human networks also have both physical and nonphysical components. Health care networks, for example, are comprised of a physical collection of hospital buildings, but they also rely on a network of immaterial links between doctors and specialists who refer patients to one another. Here too, there are both "hardware" and "software" components.

In maintaining the integrity of cyberspace as a globally shared space, the upkeep of reliable network links is crucial. Anyone who has ever experienced difficulties logging onto the Net because of a bad line knows how critically cyberspace depends on good network links. In other words, the strength of cyberspace as a whole depends on the maintenance of good connections between the various nodes. Again this is a powerful metaphor for human communities, because the strength of our communities also depends on the maintenance of good "strong" connections between "nodes"—that is between individuals, and between various social groups. Just like cyberspace, the integrity of human social space also depends on the strength and reliability of our networks.

p.300

This is a very long marginal note, which will show what happens if I try to insert a commentary in the margin. I guess that I'll have to expand the margin and reduce the size of the text to make this work properly.

Another feature that binds together any human community is the fact that a group of people "inhabit" a common "world" that is, they share a common vision of reality, or a common "worldview." Central to the creation of a common worldview is a common language, for language is the primary means by which we humans make sense of the world around us. What is real for any people are

those things for which they have words, those concepts and ideas which their language literally articulates. There is a sense in which language creates the world of any people. Now cyberspace itself is a "world" created by language, a world that actually comes into being through the power of specially designed computer languages. Once again, then, in its very ontology cyberspace serves as a metaphor for processes that are central to the creation of human communities.

The "world-making" power of language has been recognized in the myths and creation stories of cultures and religions the world over. In the Old Testament, for example, we find the famous phrase "In the beginning was the Word." With these words the ancient authors of the Hebrew scriptures acknowledge that before language there was, in effect, nothing. The world-making power of language is also recognized by the sophisticated cultures of the Australian Aborigines who traditionally sang songs as they walked across the land, believing that their incantations called the land into being. The entire continent of Australia is crisscrossed by a network of walking tracks known as "songlines," each associated with a complex cycle of songs. For Aboriginal people, these song-

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lines formed the basis for a continent-wide navigational system, all elaborately structured network which they rationally made sense of their vast land. In essence, through the power of language, the

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C Y B E R - U T O P I A . 3 0 1

soiig-lliics gave structure to a land that for liLindreds of miles at a stretch is ali-nost feattireless desert. To put tllis another wav, the song-lliies transformed the "emptiness" of the desert into an ordered and structured space. They actually generated the gcographic space of Aboriginal life. Moreover, these soiig-lliies also 'ded a network of relat'oioisli'ps between the iiiiaiv different

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'ties that populated the At-lstral'aii continent.

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Cyberspace also is a paradigmatic instance of the "worldmaking" power of language. At every level of electronic communicatloii within the Internet there are special languages or

11 "protocols" to ensure that all the machines can talk to one an-

other. Cyberspace as a communally shared world would simply not be possible without the immaterial power of language. In addition to various "network protocols," there are also special protocols that determine how written text should be encoded for transmission over the Net, and also for how graphics, sound, and video should be encoded. You cannot in fact do anything in cyberspace without invoking numerous electronic languages and protocols.

More critical even than its hardware, cyberspace is made possi 'ble by the ephemeral technology of language. As the great philosopher of space Henri Lefebvre would say, the "production" of cyberspace cannot be reduced solely to its physical components.'9 The irreducibility of cyberspace to its physical substrate is

'dent 'n its structure, which, as we have noted, is partly physical

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and partly not. As William Gibson correctly anticipated in his fiction, the essence of cyberspace is not its material connections but its logical (or linguistic)

ones. In the end, cyberspace is not just a physical network, it is above all a logical network.

And again, there is a profoundly communal dimension to the “production” of cyberspace, for as a matter of practical reality, the electronic languages that produce this digital domain must be designed and implemented by large international groups of

p.302

302. THE PEARLY GATES OF CYBERSPACE

network engineers and computer scientists. @, @, cry one of the electronic languages and protocols that make cyberspace possible are carefully designed by specialized international committees. Moreover, once these protocols are established, they only work effectively because the whole network community agrees to abide by these common codes. Without this mutual responsibility, the coherence of cyberspace would quickly break down, because all segments of the Net would no longer be able to communicate with one another. Indeed, they might not be able to communicate at all. The very existence of cyberspace as a globally shared space thus depends on a highly cooperative and mutually responsible community. In this sense cyberspace is a marvelous example of

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what such a community can achieve—nothing less than the creation of a new global space of being.

There is here an important lesson that I believe we can learn from cyberspace: Any community that shares a "world" is necessarily bound into a network of responsibility. Without the continuous

ing support of a community, any world (that is, any space of being)

will begin to fall apart. If cyberspace teaches us anything, it is that worlds

the worlds we conceive (the spaces we "inhabit") are continual projects requiring ongoing continual responsibility.

Some readers will protest at this point. They will object that if cyberspace is a communally produced world, that the physical

world

is independent of human beings, and that physical space is not reliant on us for its existence. On one level this is true: The physical world would not break down if every human

being disappeared tomorrow. What would break down, however,

the world that we inhabit is our particular conception of it.

of this world—our worldview. Consider for example the digital shift that has been occurring in this work, the

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@s,orldx@iew (@srlth its monastic conception of space). 'I'irotigliotit

p.303**CYBER - UTOPIA.303**

this trans't'oi the pliy's'cal world 'tself did not change; yet as a matter of lived reality, the world as perceived by the medievals actually disappeared. This complex dtialistic spatial scheme was replaced by a new monastic spatial scheme with radically different properties. There is a sense in which we must conclude that the medieval world broke down-not because the cosmos itself changed character, but because community support for this particular worldview gradually eroded.

just as eyberspace is communally produced, so in a profound sense are all spaces. Whether we are talking about medieval conceptions of spiritual space, or scientific conceptions of physical space, every kind of space must be conceptualized, and hence "produced," by a community of people. Here again, language is key, for every different kind of space requires a different kind of language. Just as cyberspace could not come into being until new kinds of languages for electronic communication had been developed, so any new kind of space requires the development of a new language.

Take, for example, astronomical space. In Copernicus' time there simply did not exist a language for talking about cosmological phenomena in physical terms. Over the past four centuries, scientists have gradually developed a sophisticated language of physical cosmology so that those today who study phenomena such as "neutron stars" and "pulsars," the "big bang" and the "Hubble expansion," "gravitational lensing" and "stellar spectrums" can now communicate efficiently and effectively with one another. To name is, in a profound sense, to create. And one of the major achievements of the scientific revolution was to articulate a language of physical space. Indeed the creation of new scl'fie languages is a constant and ongoing part of scientific

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history. In our own century scientists studying relativistic space have gradually developed their own language, as also have those who thieorlze about hyper-space. Anyone who doubts these

p.304

disciplines have their own separate languages like to try reading some of their papers. The fact that each scientific discipline does now have its own language is precisely why it has become so difficult even for other scientists to keep up in fields outside their domain of speciality.

My point here is not to suggest that astronomical space or relativistic space are mere figments of our imaginations, but rather to acknowledge that the "production of space"-any kind of space is necessarily a communal activity. The spaces that we inhabit are irrevocably articulated by communities of people, who cannot express their ideas about reality except through the medium of language. How we see ourselves embedded in a wider spatial scheme is not simply a question of getting to know the "facts"; it is always and ever a matter for social and linguistic negotiation.

As Einstein himself recognized, it is the language we use the concepts that we articulate and hence the questions that we ask that determines the kind of space that we are able to see. By shifting the parameters of scientific language, Einstein was able to see a new conception of space. Relativistic space is no fiction (I would not be writing this manuscript at a computer if the designers of microchips had not understood the relativistic effects of electron behavior), but that said, it is important to understand that relativistic space is not some "transcendent" reality in the mind of some God. In a very powerful sense it would not exist without Einstein and the subsequent community of relativity physicists. If every relativity physicist died tomorrow and every paper on the subject suddenly disappeared, in what sense could relativistic space be said to "exist"? just as medieval soul-space disappeared with the demise of the community who supported that concept, so too relativistic space would disappear from the human psychic landscape without the continued existence of the physicists.

Since all spaces are necessarily the productions of specific

p.305

communities, it is not surprising that conceptions of space often reflect the societies from which they spring. Samuel Edgerton has noted, that the space of linear perspective was a "visual metaphor" for the orderliness and mercantile rationality of fourteenth-century Florentine society." The anthropologist Emile Durkheim has argued that indeed different societies' conceptions of space always reflect the social organization of their communities. He cites, for example, the Zuni Indians who divide space into seven distinct regions-north, south, east, west, zenith, nadir, and center-which derived from their social experience. According to Durkheim this seven-fold space was "nothing less than the site of the tribe, only indefinitely extended."

As a production of late twentieth-century Western communities, cyberspace, also, reflects the society from which it is springing. As we have noted, this space is coming into being at a time when many in the Western world are tiring of a purely physicalist world picture. Can it be a coincidence that we have invented a new immaterial space at just this point in our history? At what point when many people are longing once more for some kind of spiritual space?

To recognize the contingent nature of our conceptions of space is not to devalue them -relativistic space is no less useful or beautiful because we understand its cultural embeddedness. But in recognizing this, we may become less likely to devalue other conceptions of space. The fact that we now live with two very different kinds of space - physical space and cyberspace - might also help us to have a more pluralistic attitude toward space in general. In particular, it might encourage a greater openness toward other societies' spatial schemes. Moreover, if the story we have been tracing in this book has any lesson, I believe it is that our spatial schemes are not only culturally contingent, they are also historically contingent. There is no such thing as an ultimate or supreme vision of space; there is only ever an open-ended process in which

[p.306] we may constantly discover new aspects of this endlessly, fascinating phenomena.

Throughout history new kinds of space have come into being, as older ones have disappeared. With each shift in our conception of space also comes a commensurate shift in our conception of our universe -and hence of our own place and role within that universe. In the final analysis, our conception of ourselves is indelibly linked to our conception of space. As I noted at the start of this work, people who see themselves embedded in both physical space and spiritual space cannot help but see themselves in a dualistic sense, as physical and spiritual beings. But a people who conceive of space in purely physical terms are virtually compelled to see themselves as purely physical beings. This, of course, is not the only choice; people in non-western cultures have conceived entirely different options. What is universal is that conceptions of space and conceptions of self mirror one another. In a very real sense, we are the products of our spatial scheme.

With the advent of cyberspace we are thus alerted that our conception of our world, and of ourselves, is likely to change. Just as the advent of other kinds of space have always thrown the current worldview into a state of flux, so too cyberspace will likely alter our vision of reality in powerful ways. Just what changes will this new space precipitate? What kinds of reality shifts will it entrain? And how will it affect our conception of our own role within the world system? We cannot yet answer these questions for it is too early to know. In a sense we are in a similar position to Europeans of the sixteenth century who were 'ust becoming aware of the physical space of the stars, a space quite outside their prior conception of reality. Like Copernicus, we are privileged to witness the dawning of a new kind of space. What history will make of this space, appropriately enough, only time will tell.

CHAPTER EIGHT

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320. NOTES

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