NETWORKED PUBLICS

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Place: The Networking of Public Space

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Contemporary life is dominated by the pervasiveness of the network. With the worldwide spread of the mobile phone and the growth of broadband in the developed world, technological networks are more accessible, more ubiquitous, and more mobile every day. The always-on, always-accessible network produces a broad set of changes to our concept of place, linking specific locales to a global continuum and thereby transforming our sense of proximity and distance.

In the following chapter, we explore both the networking of space and the spatiality of the network, identifying a series of key conditions: the everyday superimposition of real and virtual spaces, the development of a mobile sense of place, the emergence of popular virtual worlds, the rise of the network as a socio-spatial model, and the growing use of mapping and tracking technologies. These changes are not simply produced by technology. On the contrary, the development and practices of technology (as well as the conceptual shifts that these new technological practices produce) are thoroughly imbricated in culture, society, and politics. To be clear, the new is not good by default. The conditions we observe are contested and give rise to new tensions as much as to new opportunities. With connection there is also disconnection, and networks can consolidate power in the very act of dispersing it. We will examine both the plusses and minuses of these conditions throughout the chapter.

Taken together, these changes are already radical. But it is likely they will be only the first steps in restructuring our concept of spatiality toward a reality of which we can only be partially aware, just as the first theorists of modernism could only partially understand the emerging condition of their day.

Simultaneous Place: Networked Publics

"One hundred dollars for three thousand minutes," a twenty-five-year-old man with a Farsi accent repeats into his mobile phone. The scene is the local Starbucks, where you've gone to get away from the all-consuming distraction the Internet introduces into your life. You've intentionally left your phone in the car in order to be blissfully unaware of any professional or personal obligations that might take you away from your task. You've even left your laptop behind so that you won't be tempted by the queue of e-mails to catch up to. You're in the café with your Moleskine notebook—a non-networked object ubiquitous among the digerati—trying to start an essay on the role of place in network culture and finding that the only way forward is to detach yourself from the network as much as possible. But the people surrounding you have other ideas. The man behind you is trying to commit himself more deeply to the network, purchasing a plan that will allow him to talk on his mobile phone for one-tenth of his waking hours every month. A woman next to you is browsing the Internet with her laptop, a late-career executive is thumbing his Blackberry, two students are studying together, and some teenagers are hanging out listening to music on their iPhones. While one texts her friends, the other downloads music from the iTunes store. A thirtysomething man is on his laptop working on a screenplay, while a few people are just reading books or the paper. You are all somehow drawn together by the lure of the generic (but branded) caffeinated beverage and the desire to share a similarly generic, but nonetheless communal, space with other humans with whom you are likely not to have any direct interaction.

This is, as far as humanity goes, a scene that is simultaneously age-old and unprecedented. We gather at the communal watering hole as we always did; only now we don't reach out to those around us. Instead, we communicate with far-flung souls using means that would be indistinguishable from magic for all but our most recent ancestors.

That we open at a coffeehouse is not incidental. For theorist Jürgen Habermas, when the public sphere emerged in the early eighteenth century, it did so in the context of the café, the learned society, and the salon.[1] Together with the rituals of coffee drinking, the café increasingly provided both forum and fuel for critical debate about the latest pamphlets, newsletters, and broadsides. But the public sphere was not so much a physical place as a discursive site in which a literate public could conduct rational and critical debate. The assembly and dialogue that constituted this emerging public sphere occurred as much within the pages of newly circulated printed materials as it did within the walls of the coffeehouse. And yet, although Habermas's ideas of the emancipatory potential

of the public sphere were dependent on open models of communication and participation, the café maintained its own invisible divides of power and access. The spaces that Habermas championed as the original outposts of this deliberative democracy were not open to women, or to men not of the appropriate race, class, or ethnicity. Instead, women conducted different modes of deliberative discourse in separate spaces, such as the tea table and the public laundry.

What kind of public do we have in the café scene of our quotidian present? Women sit alongside men, and the patrons vary widely in age and ethnicity. But they are not engaged in debate or dialogue with each other. If they come together, it is simply to establish an ambient visual experience of bodies in near proximity, which is as psychically necessary in this wired and wireless age as it was in the days of *Australopithecus.* The material space of Starbucks is designed to facilitate this through its neighborhood location, its anonymous yet familiar design choices, its comfortable furniture, and the carefully calibrated background music. But if these individuals don't interact with the other café-goers verbally, they are engaged in a calculated copresence: while comfortably sipping coffee or its commodified equivalent in the franchised design of this local Starbucks, they are—via a network connection, mobile phone, or wireless laptop—in another place.

Of course, much has happened since the eighteenth-century café inaugurated public life in Europe's great cities. The newspaper, penny novel, and other printed matter offered new forums for the literate public; arcades, boulevards, and other public spaces shaped the bourgeois city. Poet and art critic Charles Baudelaire championed the man on the street—the *flâneur*—who moved through this newly forged urban milieu with the privilege of a bourgeois gentleman in public space: "To be away from home, and yet to feel at home; to behold the world, to be in the midst of the world yet to remain hidden from the world."[2] In reflecting on these changing configurations of public and private on the streets of modernity, German cultural critic Walter Benjamin wrote: "The street becomes a dwelling for the *flâneur;* he is as much at home among the facades of houses as a citizen is in his four walls. . . . The walls are the desk against which he presses his notebooks; news-stands are his libraries and the terraces of cafés are the balconies from which he looks down on his household after his work is done."[3]

Not everyone had the bourgeois male's privilege. The *flâneuse,* if she was to navigate public space on her own without being thought of as a product for sale, was safest in the cathedrals of consumption, department stores that encouraged other new behaviors. Consumerism was born out of the need to create desire for the products of the industrialized machines of capital and to award women new agencies, a new "purchase" on public space.

As the nineteenth century drew to its end, the pedestrian mobility of the *flâneur* and *flâneuse* was augmented by the many machines of transport—trains, streetcars, buses, moving walkways, escalators, elevators—that not only accelerated movement but produced new social behaviors. "Before the development of buses, railroads, and trams in the nineteenth century," writes sociologist Georg Simmel, "people had never been in a position of having to look at one another for long minutes or even hours without speaking to one another."[4] Yet, as both Simmel and Baudelaire observed, the only way that humans could navigate the overwhelming condition of the metropolis was by disconnecting, by shutting off their connections to this multitude of others.

Cultural critics observed that such detachment increased during the twentieth century as people fled decaying cities to suburbs. Public space became increasingly privatized and virtualized, with networks of individuals being replaced by television broadcast networks, and individuals becoming less and less citizens and more and more consumers.[5] For these critics, it wasn't just television that produced these changes. The public sphere was being evacuated, and along with it place—as well as its deeply etched social and historical meanings—was quickly disappearing. In her book *The Death and Life of Great American Cities,* Jane Jacobs linked the decline of the city and the collapse of the public sphere, arguing that a vital sense of *civitas* depends on an architectural infrastructure that encourages frequent, random face-to-face interactions within an urban community. For Jacobs, both modern urban planning and the detached single-family house in the suburb inhibited those vibrant interactions.[6]

Perhaps the crescendo of this gloom came only a decade and a half ago when anthropologist Marc Augé made his dismal conclusion about the nature of human interaction in physical space in his *Non-Places: Introduction to an Anthropology of Supermodernity.* Augé suggests that our sense of place, as old as humanity, is coming to an end. Building on Marcel Mauss's idea of place as a "culture localized in time and space," Augé distinguishes places—locations in which individuals with distinct identities form human relationships that in turn accrete, creating the sediments of history—from non-places—spaces of transition absent of identity, human relationships, or the traces of history. Augé's non-places are in-between spaces, sites of transit for humans (airports, airplanes, freeways, parking garages, but also refugee camps and shantytowns), data (the space in front of the computer screen), and goods and capital (the space in front of the ATM, the shopping mall, the supermarket). This new world of non-place, Augé writes, privileges the fleeting, ephemeral, and contingent.

Places are filled with individual identities, language, references, and unformulated rules; non-places are spaces of solitary individuality. Much as at our

Starbucks, that anonymity is shared by many. According to Augé, we are all passengers on an airplane or drivers on a highway, our identities lost. Information in the world of non-place is conveyed through disembodied texts and voices offering prescriptive information: "No smoking in the airport," "Flight 140 to Madrid departs at gate 25," "Have your passports ready and customs forms filled out," and of course, "Please take the ticket." If modernity, Augé concludes, was still deeply tied to place and history—indeed, historical narratives were key to that moment—supermodernity leaves us in a realm finally devoid of history. To be fair, Augé issues a disclaimer, noting that non-place and place are only conceptual poles. He admits that there is no such thing as pure non-place—after all, for an aviation buff, airport worker, or true road

Box 1.1 Mobile Communications and the Public Sphere
From Richard Ling, *The Mobile Connection: The Cell Phone's Impact on Society* (San Francisco: Morgan Kaufmann, 2005), 193.

In "The Tragedy of the Commons," Garret Hardin discusses the ways in which common resources are progressively used up by the individualistic rationality of participating actors. If we consider the public sphere as a type of commons, the mobile telephone brings up two issues. The first is what we might call a type of audio pollution of the public sphere because of the increasing number of mobile telephone calls. This may be a transitory problem. Just as noise pollution from other sources was seen as a problem during certain phases of technological development, the developments themselves and our ways of dealing with them have resulted in a code of behavior that soon removed the problem. SMS, for example, is one adjustment, as are other developing forms of courtesy. Here it seems that the sense of the commons is being reasserted through various adjustments.

The other issue is the withdrawal from the public sphere. As Jane Jacobs noted, the thing that makes the public sphere vibrant is the continual contact with unexpected forms of interactions. Not all are pleasant, and not all are sought. Nonetheless, there is vitality and a roundness that arise from our interaction with a variety of others, no matter how perfunctory. Seeing the legless beggar, watching a street musician, giving directions to the tourist, and seeing the exotic hair color and shockingly mismatched clothes of the older woman are all elements that inform us as to the mood and sprit of our local situation. Better this than some Stepford-like existence in which all is neatly tucked into the same pattern and alternatives are not only frowned upon, but eradicated.

At a milder level, being part of the public sphere means that we are available to tell another passenger on the bus that this is the bus stop they asked about. It means being able to ask another what the time of day is or to comment, no matter how obliquely, on the weather. Clearly when we are in the public sphere, we are only minimally social. Nonetheless there is a social component. There is, however, the possibility that ICTs and mobile communication will take a small bite out of the already minimal sociability that is available in this sphere.

warrior, the airport has history, and a highway engineer's trained eye can identify just when an overpass was built. Nor is there pure place—all places are non-places for those who have not accumulated lived experience within them. Nevertheless, Augé concludes, our era is increasingly dominated by non-place, our existence doomed to solitude.[7]

But what of place today? To be sure, the old world of public space has not magically returned. Our Starbucks is a generic space in which many alight temporarily, not a place defined by the kind of encounters that might have occurred in Vienna's Café Central where Trotsky, Freud, and Loos came every day. Our Starbucks is not a place where random individuals chat with one another about the issues of the day, at least not usually.

But face-to-face encounters are only one level of human interaction: the Starbucks anecdote suggests that, for some reason, we still have an urge to gather together, even if in our solitude. And this idea of solitude is deceiving: a great deal has changed since Augé's day. The proliferation of mobile phones and the widespread adoption of always-on broadband Internet connections in homes and offices in the developed world means that we are not necessarily alone even if we are not interacting with those in close physical proximity to us.

On one level, what we observed in Starbucks was a generic space of anonymity, its caffeinated habitués lost in the crowd. But on another level it is a place where these individuals share their proximity with others similarly engaged in a place that is networked and elsewhere. For those who gather in these hot spots to engage with the network, being online in the presence of others is the new *place* to be, the bodily presence of the other cafégoers easing the disconnect with the local that the network creates.[8]

Mobile Place: The Rise of the Telecocoon

In *The Social Impact of the Telephone,* Ithiel de Sola Pool explains how the telephone made possible the modern city, with its concentrated downtown core and increasingly dispersed suburban sprawl. In de Sola Pool's analysis, the telephone enabled remote surveillance of the factory by managers who could then work in city cores, highly packed environments where they could meet other managers for face-to-face meetings in skyscrapers—a building type viable only once the telephone had made messenger boys obsolete. As de Sola Pool points out, this technology was successful because of its context. Telephones reshaped the city by symbiotically exacerbating certain trends; capital had accumulated and specialized to the degree that further growth demanded the concentration of managerial, service, and information industries in the city core and manufacturing on the periphery.

The telephone was a technology that both encouraged sociability and maintained intimacy at a distance. Unlike radio's monologic address to many, the telephone distributed its dialogic potential to individuals, allowing relationships to be constructed and maintained in a world marked by greater migration as well as interstate and international commerce.[9] Television, on the other hand, succeeded in the 1950s and 1960s in part because it offered a compensatory sense of belonging in rapidly expanding suburban environments (and rapidly shrinking urban environments) within which individuals already felt isolated.

As cultural theorists like Marshall McLuhan and Joshua Meyrowitz remind us, not only did television knit a global village of telepresent images by broadcasting live across its early networks, the medium produced a simultaneous doubling of place. Broadcast historian Paddy Scannell writes: "Public events now occur, simultaneously, in two different places: the place of the event itself and that in which it is watched and heard."[10]

In this regard, it is crucial to understand that humans organize space in such a way that it is a medium of its own. The city, as communications theorist Ronald F. Abler observed, is itself a communication device.[11] Until recently the two primary means of browsing this communication device have been on foot—the method of the *flâneur* or *flâneuse*—and with the automobile. The latter anticipates the condition of a mobile, networked world in that the automobile—which transports its driver and passengers in the comfort of a private interior—has always been a mobile communication device, a viewing machine; its windscreen a membrane that both protects the driver and frames the view. As automobile speed and design efficiency increased, so did a network of expanding roadways and highways—most notably the Interstate Highway System, itself a prototype for the Internet and a network of networks. As Jean Baudrillard asserted in his 1983 quip about the "private telematics" of driving, "the vehicle becomes a kind of capsule, its dashboard the brain, the surrounding landscape unfolding like a televised screen." It's no surprise the emerging metaphor for screenic access to Internet in the early 1990s was the "information superhighway."[12]

Automobiles are, in a sense, transitional mobile devices, accustoming individuals to browsing while in motion and to the experience of mobility with access. Car radios and, by the late 1970s, citizen-band radios (or CBs) connected the driver to information and communication beyond the vehicle. With mobile phones and Global Positioning System (GPS) devices providing access to a more browsable, pervasive network, we can access networked place with a wind-in-the-hair mobility—riding the train, walking down the street, sitting on the bus, or driving in car. Often, the car itself acts as an active agent. For

example, systems such as General Motors's OnStar offer automatic monitoring of automobiles via special cellular transmitters and GPS units. After automatically conducting a monthly checkup on the car's health, OnStar e-mails both the automobile owner and vehicle dealer with the results and, if an airbag has been deployed, telephones the OnStar call center immediately with the vehicle's coordinates.

With the proliferation of screens in cars, as well as cellular, satellite, and Bluetooth connectivity, the driver's interface is hypermobile. Whether a car is hurtling or crawling through space, the driver's telematic connection to GPS information continually updates its location. The windshield now competes with a multitude of screens, from dash-mounted LCDs (Liquid Crystal Displays) that display navigational maps and Bluetooth phone keypads to DVD players to heads-up displays on the windshield.

Telecommunications researcher Rich Ling suggests that the flexibility the car gave to individuals and our newfound ability to coordinate with others via the mobile phone are leading to a radical reconfiguration of social coordination. Whereas in modernity individuals would coordinate activities in their work and personal lives amongst each other according to schedules, today, Ling observes, we are able to move away from the mediating system of the schedule toward direct contact between individuals. In part, this emerges as transportation systems themselves become more complex and more prone to delays. As recently as two decades ago, being in transit meant being out of touch, but today midcourse adjustments can be made rapidly amongst individuals. If a parent is stuck in traffic, the other one can forego a shopping trip to pick up a child from school. As a consequence of the slack that the mobile phone gives to time-based agreements, Ling notes that schedules have softened and, as it is possible to notify others that one is running late while en route, tardiness is more acceptable.[13]

With all of the comforts available inside the networked car (called variously a Swedish, German, or Japanese phone booth), the automobile easily accommodates the spatial function that Ichiyo Habuchi has deemed the telecocoon. In relation to mobile phone use by Japanese teenagers, Habuchi describes the telecocoon as a virtual networked space created by young friends and lovers out of a constant, steady stream of conversation that keeps them in touch even when they are apart. The telecocoon maintains intimacy at a distance, facilitating private encounters in public spaces. Instead of an architectural plan or spatial design, the telecocoon relies on networking technology to create private space, thereby overcoming the problems that distance introduces into our lives. In Japan, Mizuko Ito observes, the home is too family oriented and too crowded to accommodate friends, so teens resort to their mobile phones, or *keitai,* to

text their close friends, maintaining silent conversations the entire time they are away from their friends. *Keitai,* Kenichi Fujimoto writes, are "territory machines" capable of redefining the notion of public space, transforming a subway train seat, a sidewalk, a street corner into the user's "own room and personal paradise."[14] In other countries, however, where talking aloud is more acceptable, Rich Ling observes that "forced eavesdropping" can be an embarrassment to the involuntary audience, the phoner being so absorbed in conversation that they he or she never becomes aware of the context.[15]

Mobile phone use has skyrocketed from 5 million subscribers in the United States (11 million worldwide) in 1990 to 225 million (2.7 billion worldwide) in 2007.[16] Forbes rightly calls it "the most personal and ubiquitous gadget ever devised."[17] Part of daily life in Japan and Europe, the telecocoon has only recently spread widely in the United States as mobile companies have begun providing inter-carrier SMS transmission and promoting the services, most notably by enabling SMS voting through the *American Idol* television program.[18] Mobile companies have also extended the telecocoon to a tele-umbilical for a younger set. When the Firefly was introduced in 2005 as the "mobile phone for mobile kids," it was the first such device designed and marketed for elementary school children (small enough for a child's palm, with flashing lights, a glowing body, and just five keys, easily preprogrammable, with parental and emergency phone numbers). Marketed as a safety device—like placing a tracking sensor in a kid's hand or pocket—the Firefly tethers children to the reach of the parental voice. Perhaps with the Firefly, parents will feel safe letting their children roam the streets alone again.[19]

Epitomized by the iPhone, mobile phones are increasingly capable devices, with digital cameras, games, e-mail and Web access, and video playback capability already integrated into many models. "Text me" may refer interchangeably to a message sent over an instant messaging network such as AOL Instant Messenger (AIM), to a message sent from mobile phone to mobile phone, or even to a message sent from computer to mobile phone. Third generation, or 3G, cellular networks such as EV-DO (Evolution-Data Optimized) and built-in Wi-Fi make it possible for many mobile devices to connect to the Internet at broadband speeds, allowing subscribers to access streaming audio and video and even videoconference. Meanwhile VoIP (Voice Over Internet Protocol) services such as Skype offer alternatives that bypass the mobile carriers' pricey long distance and international rates, an alternative made more viable by handsets that can swap from mobile to Wi-Fi networks.

More recent research by Ito suggests that the widespread introduction of cameras into phones is more likely to have an impact on the way the telecocoon develops as individuals share "an ongoing stream of viewpoint-specific photos

with a handful of close friends or an intimate other."[20] It may be that in the future we won't see complex gadgets trying to be all things to all people, but rather more devices like the Sony PSP (PlayStation Portable) gaming platform, a dedicated gaming device capable of connecting to the wireless Internet to network players together or download updates. Although browsers are built into the PSP system to enable connections by games, barring hacking, they remain hidden to users. Instead of one converged device offering one form of access to the network, multiple devices and objects (like cars, toys, and cameras) may acquire network access. Some of these, such as newer Tamagotchi or the Nintendo DS game system, will have their network access limited to ad hoc, local networks, encouraging group use.[21] Similarly, even though the new Apple iPhone readily connects to the Internet over Wi-Fi and runs a version of the Mac OS X operating system, as of this writing it appears likely to be restricted to running only programs the company authorizes.

Shaping their identities through networking technology and living in *keitai*-created telecocoons with their intimate friends, Japanese teenagers are today's *flâneurs.* But American teenagers have followed suit as their social networks have become more and more device-enhanced. The way that Japanese teenagers use their *keitai* is, as Ito points out, contingent on their particular cultural context, but that's precisely the point. Just as the *flâneur* served as a stand-in for broader cultural shifts in modernity, so, too, might the Japanese teenager indicate the symptomatic conditions of early twenty-first-century cultural life, demonstrating how we inhabit localized time and space as well as telematic worlds in which we can be copresent with others at a distance.

Real Virtual Worlds

In his 1831 novel about fifteenth-century France, *Notre Dame de Paris,* Victor Hugo crafted a now famous statement for the lips of the abbot of that church: "This will kill that. The book will kill the building." For Hugo, Gutenberg's marvelous invention put an end to architecture's role as a communication medium. From "the origin of things to the fifteenth century," Hugo wrote, architecture "was the great book of mankind, . . . the principal register of mankind."[22] The printed book, however, was a far more efficient medium for communicating with individuals. In contemporary terms, it had the advantage of broader bandwidth and mobility. Hugo's decision to stage his novel in the fifteenth century was by no means whim: the print literacy that Hugo described beginning its radical spread with Gutenberg only truly became a mass phenomenon in his own day.

If Hugo was largely correct about the capacity of the book to replace the building as text, what about the possibility that the network might replace the building as dwelling place—that virtual space will replace real space?

A decade ago, visionaries such as William Mitchell suggested that with the development of the Internet, the downfall of the modern city was upon us. In their view, the new problem was how to create the "city of bits," the electronically mediated spaces for the lives that we would be leading online, which were as sure to replace the modern city as it, in turn, replaced the village.[23]

The provocative visions of a universal, three-dimensional cyberspace, such as those shown in Michael Benedikt's seminal *Cyberspace: First Steps,* have not come to pass.[24] At the time, with our vision of the future colored by cyberpunk novels like William Gibson's *Neuromancer,* it seemed plausible that we would inhabit virtual cities, our bodies becoming wetware and the spaces and social formations surrounding them increasingly neglected.[25] But VRML (Virtual Reality Modeling Language), the much-touted three-dimensional counterpart to HTML (the hypertext markup language typically used on the Web), hasn't resulted in one commonly used site. Although the Web has become graphically more sophisticated, when we visit it we navigate a two-dimensional interface. Corporate presences on the Internet appear to us as brochureware, not as virtual structures that we can enter into and inhabit. Indeed, the Web is curiously nonspatial, a step back from the use of the desktop and file folders to represent relationships between data.

In retrospect, the all-digital "city of bits" seems to be a historical artifact, the product of a digital culture in which the user was tied to a CRT (cathode-ray tube) screen. The key technological devices that shape our lives—telephones and computers as well as the telematic networks that connect them—are now mobile, free of specific contexts but implicated in situational contexts, coloring those situations just as those situations color their contexts in turn.

Today, however, as the previous sections on place and mobility suggest, rather than having one body withering away in front of the screen, it is progressively more common to navigate two spaces simultaneously, to see digital devices and telephones as extensions of our mobile selves.

But was the prophecy all wrong? To some degree, this world predicted by the techno-futurists has come to pass. The Web is a growing presence in our lives. Mobile phones, e-mail, and browsing for information are increasingly part of the everyday experience of many people. Shopping in particular is becoming more and more virtual for many consumers. If the dot-com crash demonstrated that some business models such as Webvan or Pets.com were not immediately viable, other models have proven more profitable. Bricks-and-mortar stores

have been seriously challenged by mail-order megastores such as Amazon.com and content-delivery services such as iTunes that offer lower prices while also making available a wider variety of long-tail products (commodities that are purchased too infrequently to be stocked in normal stores but that collectively rival the share of the market controlled by hits). When we window-shop, it is more frequently in the window of our Web browser.

Moreover, for millions of people, the Internet offers an alternate reality in the form of Massively Multiplayer Online Role Playing Games (MMORPG). Blizzard Entertainment—owners of the most popular MMORPG, World of Warcraft (WoW)—boasts that it has some eight million dedicated players. Even taking into account corporate hyperbole, the fact remains that the population of one game alone exceeds that of Los Angeles. Edward Castronova calls such MMORPGs "the first settlements in the vast, uncharted territory that lies between humans and their machines."[26]

Immersed in these spaces, players occupy avatars, virtual stand-ins for their earthly selves that they can craft to their liking, choosing an appropriate name, hair color and style, clothing, color, gender, race (by this we mean not only in the familiar sense, but elven, dwarven, or orc as well), and pet.

But does the body wither away? As *The Matrix*—the film that, more than any other, is our cinematic allegory for contemporary life—suggests, the flesh and its avatar are linked, and everyday reality and the virtual worlds of the games collide. To take one example, after a player in WoW died of a stroke, her friends organized a virtual funeral for her. But they did so in a contested zone on a WoW server in which players routinely fight other players. A hostile party mounted a raid against the grieving teammates and posted the video on the Net, causing a controversy among gamers. If monsters generated by the game's algorithms had perpetrated the ambush, the players would not have complained, but that other players did so raised questions about moral behavior and the limits of reality in MMORPGs.[27]

Conversely, since MMORPGs are typically based on economic models in which characters generate virtual currency by killing monsters or completing other tasks and spend that currency on virtual items, many millions of dollars a year are generated in the buying and selling of these virtual goods. Even though the legality of the activity has been called into question by some MMORPG companies, this has led to the development of *gold farming,* in which individuals, working for low wages in China and Indonesia, obtain gold or rare virtual items that they then sell for real money. In China some one hundred thousand workers spend twelve-hour days farming gold, but this isn't merely a question of outsourcing—estimates suggest that there are more players of MMORPGs

in China than in any other country and the Chinese government estimates that some twenty-four million individuals played online games in 2005.[28]

Even though they are still rather early in their development, MMORPGs seem to have the capacity to feed back into real culture. John Seely Brown and Douglas Thomas suggest that World of Warcraft effectively teaches players how to manage teams in the successful accomplishment of complex tasks.[29] MMORPGs such as Second Life make possible online meetings of individuals dispersed in space and time. Such meetings would be more effective than videoconferencing, it is argued, since even if a participant is replaced by an avatar, the full range of three-dimensional motion in an MMORPG affords a more intimate experience than the flattened world of videoconferencing.

MMORPGs have yet to become mobile. Developers have produced alternate reality games (or ARGs) such as the viral marketing stunt "I Love Bees," but these have so far failed to capture a broad following.[30] Still, as MMORPGs continue to rise in popularity, they suggest another aspect of the quality of network culture: that increasing numbers of us have, or will have, alter egos that dwell as much in virtual, networked worlds as in this one.

The Network and Its Socio-Spatial Consequences

Throughout both this chapter and the book as a whole, we observe how network culture's focus on the node's position in a broader (technological and social) network has supplanted digital culture's drive to abstract the world into discrete, computable elements. The transition toward network culture is not merely technological, it is deeply tied into societal changes. In *The Rise of the Network Society,* Manuel Castells analyzes how society is moving toward more networked forms of organization in production, power, and experience. Corporations, financial markets, criminal activities, and political groups that were structured as vertically integrated hierarchies in modernity are organized as networks in our own time.[31] This condition is by no means placeless. On the contrary, Saskia Sassen has identified the "global city" as the key site for the new global economy. The global city, she concludes, is "a function of a network of cities" that takes precedence over any individual role that these cities might play. In Sassen's analysis, these key metropolitan areas do not function independently but rather act as nodes in a planetary economic system—highly concentrated sites in which interpersonal communications take place and which are intimately connected in a single global economic and communicational network.[32]

The social infrastructure emerging in the global city is augmented by a concentration in network topology. Far from the mythical distributed ideal that

ideologists of technology claim it to be, the network has its own physicality, its own material presence. Networks rely on relatively few high-bandwidth transcontinental and transoceanic fiber-optic lines, on even fewer Tier-1 carriers that sell space on these lines, and on still fewer mobile-phone operators and last-mile connection (DSL or cable broadband service) providers that allow the end user to access bandwidth. Interchanges between such networks occur at only a few major peering points, usually one or two major carrier hotels per metropolitan area. This highly centralized system produced by historical factors (most notably the monopoly stature of AT&T prior to divestiture) helps to further concentrate the global city. Not only is this system vulnerable to natural or man-made disasters but, as the scandal over National Security Agency data mining during the summer of 2006 demonstrated, it's all too easy to take advantage of by individuals or governments.[33]

Much as the telecocoon functions on an individual level, the global city's connections create local disconnections. The new space of flows is constituted as a set of hubs and nodes. Areas and populations outside of this logic are subject to the tunnel effect: they virtually don't exist as far as the network and, hence, the dominant world economy is concerned.

Both Castells and Sassen raise concerns about areas that are left out of this network on a planetary, national, and urban scale. Nevertheless, during the last decade, networking technology has had an impact on areas that had previously

Box 1.2 Material and Immaterial Real Estate
From Stephen Graham, "Excavating the Material Geographies of Cybercities," in The Cybercities Reader (London: Routledge, 2004), 139.

> These days, telecommunications and digital media industries endlessly proclaim the "Death of Distance" and the "ubiquity of bandwidth." Paradoxically, however, they actually remain driven by the old-fashioned geographic imperatives of putting physical networks (optic fibres, mobile antennas and the like) in trenches, conduits and emplacements to drive market access. The greatest challenge of the multiplying telecommunications firms in large cities is what is termed the problem of the "last mile": getting satellite installations, optic fibres, and whole networks through the expensive "local loop." In other words, the challenge is to thread networks under the congested roads and pavements of the urban fabric, to the smart buildings, dealer floors, headquarters, media complexes and stock exchanges that are the most lucrative target users. Because high-bandwidth networks have to be end-to-end it is not enough to construct networks to main exchanges and city cores; fibre must be threaded through the curbs of users and beyond the actual computers inside buildings. Consequently, fully 80% of the costs of a network are associated with this traditional, messy

business of getting it into the ground in highly congested, and contested, urban areas.[a] This hard material basis for the "digital revolution" is neglected but crucial. Focusing on it allows analysis to begin to reveal the complex social and technological practices that surround and support the explosion of digitally mediated economic and cultural flows.[b]

Such an approach also begins to reveal the subtle and powerful reconfigurations of urban space that are the result of such changing technological practices. Take an example. In a frenzied process of competition to build or refurbish buildings in the right locations for booming new media, telecommunications, and e-commerce companies, a New York agent reported recently that "if you're on top of an optic fibre line, the property is worth double what it might have been."[c] With this, and many other examples of the reconfigurations of urban space, we see that the "information age," or the "network society," is not some immaterial or anti-geographical stampede on-line. Rather, it encompasses a complex and multifaceted range of restructuring processes that become highly materialized in real places, as efforts are made to equip buildings, institutions, and urban spaces with the kinds of premium electronic and physical connectivity necessary to allow them to assert nodal status within the dynamic flows, and changing divisions of labour, of digital capitalism.[d]

These restructuring processes are intrinsically bound up with changing governance and power relations and patterns of uneven development at all spatial scales, from the transnational to the body.[e] In general, they tend to support a complex fracturing of urban space as premium and privileged financial, media, corporate and telecommunications nodes extend their connectivity to distant elsewheres whilst stronger efforts are made to control or filter their relationships with the streets and metropolitan spaces in which they locate (through defensive urban design, closed circuit surveillance, the privatization of space, intensive security practices, and even road closures).

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a. See Steve Pile, "The un(known) city . . . or, an Urban Geography of What Lies Beneath the Surface," in *Unknown City: Contesting Architecture and Social Space,* eds. Iain Borden, Jane Rendell, Joe Kerr with Alicia Pivaro, 263–278 (Cambridge, MA: The MIT Press, 2001).

b. Rae Zimmerman, "Social Implications of Infrastructure Network Interactions," *Journal of Urban Technology* 8, no. 3 (December 2001): 97–119.

c. Brant Bernet, "Understanding the Needs of Telecommunications Tenants," *Development Magazine* (Spring 2000): 16–18.

d. Manuel Castells, *The Rise of the Network Society* (Oxford, UK: Blackwell, 1996); Dan Schiller, *Digital Capitalism: Networking the Global Market System* (Cambridge, MA: The MIT Press, 1999).

e. Michael Peter Smith, *Transnational Urbanism* (Oxford, UK: Blackwell, 2001).

been outside the global economy. Developing countries with well-educated, technologically adept, and often English speaking workers such as India, China, Ireland, and Estonia have become hosts for outsourced information work. This provides much needed capital and employment, as well as an infrastructural (physical, human, and organizational) framework that spurs indigenous information economies to emerge. In turn, this has led to tensions in the developed world as jobs are being lost or outsourced. But networking technology has also allowed resistance movements, non-governmental organizations (NGOs), and other bottom-up entities to band together worldwide, creating a powerful antiglobalization movement that seeks to redress the inequalities of network society.[34]

Castells suggests that the network has to be seen as part of a bipolar opposition between "the Net and the self," in which individuals relentlessly try to affirm their identities in a rapidly changing world. This identity formation increasingly happens within networks that are both physical and virtual, filled with individuals who both produce and consume, taking advantage of new kinds of online cultural production.[35]

Online social network services such as Friendster and MySpace tap into this increasingly networked culture. Particularly aimed at young people, social network services are generally not composed of static pages but rather are sites of social interaction that are constantly revisited by their active members. Typically, these sites consist of profile pages that contain photos, demographic information, an individual's personal preferences, a blog or link to a blog, and—in sites operating according to the circle of friends model—links to profiles of an individual's friends as well as comments from friends. Writing about MySpace, danah boyd suggests that such sites are not just pages or media but actual places that take over the site of the teenage hangout. She concludes that, when combined with instant messaging, these sites provide intimate communities that fulfill a vital function for teens who have no real spaces in which to gather.[36]

Always eager to understand and exploit changes in society, marketers have been forced to rethink the way they conceive of their audience to adapt to this new condition. In particular, the new place-based field of geodemographic targeting and profiling combines research into networks, places, and cultural production. Specializing in geodemographic marketing over the last thirty years, the Claritas corporation has mapped the breakdown of the mass audience into some sixty-six distinct demographic clusters based on age, ethnicity, wealth, urbanization, housing style, and family structure. Increasing diversification from immigration, economic changes, and greater choice produce a landscape

composed of radically small minorities, the largest a mere three percent of the American population.

Lifestyle differences between clusters can be extreme, and an individual's values and interests depend on their cluster. Members of the upper-middle-class Young Digerati cluster who, for example, inhabit the Fairfax area of Los Angeles might live in a trendy condo, drive a Toyota Hybrid, and generally vote liberal while maintaining a libertarian bent. This could be a family with young, tech-savvy parents who work in digital production for Hollywood and are drawn to the area by the array of coffeehouses. But only forty-five miles away, in the postsuburban Orange County town of Newport Beach, another couple from the same socioeconomic background (both couples are likely to be Caucasian, Asian, or mixed, and have finished graduate school) and same salary might be members of the Blue Blood Estates cluster—business executives who value their newly built McMansion homes, vote Republican, enjoy golf vacations, and eat fast-food that their children prefer.

These new tribes are widely dispersed nationally and globally, connected to other members of their own tribes by telecommunications and media. Still, on a local scale, people live next to people they like. Clusters exist as small geographic communities. Although clusters always overlap one another—Claritas generally identifies five clusters per area—they do so in locations that suit them infrastructurally. Individualist, extremely liberal, often gay, arty singles will seek urban communities with a vibrant street life—places like West Hollywood and Silver Lake in the Los Angeles area, Lakeview in Chicago, or Dupont Circle in Washington DC—not manicured homes in postsuburbia. Place and community are themselves forms of infrastructure today, key devices in the network.[37]

Steven Johnson suggests that the renewed interest in cities during the 1980s and 1990s will only increase with the growth of what Chris Anderson calls the *long tail.* Anderson observes that the demand curve for cultural products has traditionally been understood as validating the production of a small number of hits to be bought up by a vast consumer market. In his theory of the long tail, Anderson suggests that the Internet is making the flat part of the long tail—populated by products appealing to ever-smaller niches—as profitable as the head. According to Anderson, tools such as aggregators and search engines couple with a societal shift in media consumption to the flat part of the long tail to increasingly leave behind a one-size-fits-all mentality for an interest in more eccentric, niche tastes. Johnson argues that with culture moving to the flat part of the long tail, the diversity of taste cultures that we can find in dense cities will appeal to us more and more.[38]

Place itself does not disappear in favor of the "city of bits." On the contrary, place is as important as ever, playing a key role in the network itself. Still, the previous examples of recent changes in our relationship to the spaces that surround us are all dominated by the seemingly inescapable logic that the price of new connections is local disconnection. But this logic may soon be changing. Two emerging technologies—the geospatial Web and ubiquitous computing—suggest an intertwining of the network and the local, bringing with it new possibilities and new questions.

Geographic Information Systems (GIS) offer a way to represent and analyze data spatially and have been commonly used by industry and government for some time now. Developed in 1967 by Roger Tomlinson at the Canadian Department of Energy, Mines and Resources, the first such system, called CGIS (for Canadian GIS) collated information on land use.[39] Since then, government agencies such as the U.S. Geological Survey and the U.S. Census Bureau, as well as corporations utilizing geodemographic marketing, have adopted GIS with enthusiasm. Much as the spreadsheet revolutionized businesses by making it possible to test scenarios on a personal computer, GIS make it possible to model and hypothesize geospatial scenarios such as changes in a watershed due to construction, the spread of a plume of fuels and solvents underneath an airport and the surrounding neighborhood, the rise or fall of a city's tax base as a result of a new park, or shifts in congressional seats caused by redistricting. For forecasting and analyzing this kind of information, GIS is now indispensable. For the most part, however, the specialized nature of GIS has largely meant that the administration, development, and use of such data has been the province of government, corporations, NGOs, and other research organizations.

Over the last few years, commonly used Internet tools have made GIS available to end users, offering what Institute of the Future researcher Mike Liebhold has called the *geospatial Web*—an augmentation of the placeless information of the browser-based Internet with geographic coordinates.[40] Internet mapping sites such as MapQuest, Yahoo! Maps, and Google Maps are the most familiar applications of GIS technologies, offering user-definable maps and door-to-door, turn-by-turn driving directions. To be fair, turn-by-turn maps, such as the American Automobile Association's Triptiks, have been available for almost a century. If the online services make such information more convenient and more readily accessible by dispensing with the map in favor of point-to-point travel, they also enhance the tunnel effect of networks. With a map, one might be tempted to go off route to see a nearby attraction, but

with turn-by-turn directions, routes are optimized and only the most prosaic sponsored businesses interrupt the smooth flow of one's drive.[41]

In the case of Google Maps, Google has made it possible for amateur programmers to interface the site's data and maps easily. As a result, programmers have created hundreds, if not thousands, of Google Maps mash-ups—geospatial interfaces to all manner of information interesting to end users such as free Wi-Fi nodes (http://www.gwifi.net/), real estate available on Craigslist (http://www.housingmaps.com/), locations of cellular towers (http://www.cellreception.com/towers/index.html), or airports in which pets have been lost, injured, or killed (http://www.petflight.com/incidents/map).

Google is also responsible for the Google Earth application, dubbed "the People's GIS" for its attractive, easy-to-use interface capable of rendering three-dimensional flyovers based on satellite photographs and contour data in real time; for its ability to display layers of GIS data—such as locations of shopping malls, monuments, places to eat or sleep, or city boundaries; and for the ease by which users input their own information such as coordinates to Wikipedia articles, earthquakes, or annotations to historic or interesting sites (e.g., airplanes visible in the satellite photographs, crime scenes, or corporate signs).[42] To some degree, Google Earth gives a taste of a future *digital earth,* a term coined by Vice President Al Gore in 1998 to refer to a three-dimensional virtual representation of the planet that would allow individuals to explore scientific and cultural information about the planet.[43] But even though Google Earth is a fascinating application, it does not have the depth to allow users to find out the natural or human history of a site. Lacking any real purpose, Google Earth has had little impact on everyday life in comparison to the more prosaic two-dimensional mapping interface of Google Maps and may yet replay the failure of three-dimensional Web interfaces.

The Holy Grail for networked place, however, is to take GIS information mobile. With GPS technology improving and both mobile phones and personal digital assistants (PDAs) gaining Internet connectivity, hackers, software developers, and artists alike have sought to turn the model of non-place on its head by using networking technology to create social connections. This locative media is based on the promise of handheld location-aware devices that can interface with the geospatial Web to provided georeferenced information on the spot to end users. Proponents hope that inclusion of geographic references on the Web, and the delivery of that data to the mobile end user, will make it possible for digital media to be associated with a site, or literally found there. Thus, comments, blog entries, restaurant reviews, past photographs, real estate prices, and such would be available at the sites they are associated with. This

Box 1.3 Locative Media and the Threat of Tracking

From Jordan Crandall, "Operational Media," Arthur and Marilouise Kroker, eds., CTHEORY, http://www.ctheory.net/articles.aspx?id=441.

In media-saturated societies, surveillance has gradually been made "friendly" and transformed into spectacle, to the extent that it is no longer a condition to be feared. Rather, it is a condition to be courted: witness the phenomena of reality television, blogs, and webcams, and the rise of the media mise-en-scene as the primary form of social authentication.[a] In recent cyber discourses, this "friendly" control is often regarded as self-regulating: we are an integral part of systems that self-adjust through market dynamics or adaptive behaviors, allowing for the emergence of new forms of maneuver and masquerade. Within new ecologies of mind,[b] we benefit from machine-human interactions all around us, a pervasive web of shared resources that offers boundless opportunity for identity refashioning. Further: in a database-driven culture of accounting, one needs to appear on the matrices of registration in order to "count." To be accounted for is to exist.

Perhaps nowhere have the contradictions of communicative opportunism/surveillant precision been made more palpable than in new portable wireless devices, especially those that are increasingly "location-aware." These technologies, along with their semiotics and uses, are serving to weave together degrees of temporal and spatial specificity, against the grain of much of the "delocalized" orientation of virtual discourses during the last decade—but perhaps more true to the strategic origins of the cybernetic tradition, which was, after all, concerned with the precise calculation of position. . . .

The potential of GPS-enabled devices, ubiquitous transponders, and other locationing technologies present a world where every object and human is tagged with information specifications including history and position—a world of information overlays that is no longer virtual but wedded to objects, places, and positions, and no longer fully simulative since it facilitates an active trafficking between model and reality. Such location-specific technology combines information, movement, and precise positioning—knowing "where" as well as "what."

These technologies and their discourses aim to increase productivity, agility, and awareness, yet they vastly increase the tracking capabilities of marketing and management regimes. You are able to get what you want faster, but your behavior is tracked and analyzed by marketers who also can provide this information to police and military sources, who increasingly depend upon the business sector for a large part of their intelligence. (After the carnage of the Civil War, the U.S. military was prohibited from future interventions into the domestic realm. Since most of the spy satellites are owned by the military, the military "outsources" some of its domestic intelligence needs to commercial satellite providers, while relying on data gathered through the private sector on a number of fronts, especially to meet the sudden growth in intelligence demands after 9/11.) Information from buying habits, travel locations, and audience demographics can be integrated into one comprehensive system, which aims to target

consumers at the one-to-one level, offering individually-tailored enticements. Tracked, the user becomes a target within the operational interfaces of the marketing worlds, into whose technologies state surveillance is outsourced.

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a. See Peter Weibel, "Pleasure and the Panoptic Principle," and Ursula Frohne, "Screen Tests: Media Narcissism, Theatricality, and the Internalized Observer" in *{CTRL}SPACE: Rhetorics of Surveillance from Bentham to Big Brother,* eds., Thomas Levin, Ursula Frohne, and Peter Weibel, 215–219; 253–77 (Cambridge, MA: The MIT Press, 2002).

b. See Gregory Bateson, *Steps to an Ecology of Mind* (Chicago: University of Chicago Press, 2000), 466.

is already possible with the Vindigo service, which provides locations, contact information, maps, and thumbnail reviews of restaurants, bars, bathrooms, services, museums, galleries, music venues, and so on for major metropolitan areas in the United States, as well as London, to PDA owners and mobile phone users.[44] Other locative media services propose location awareness for social networking. At Dodgeball, users sign up their mobile phone numbers with the service and inform their friends that they are doing so. Later, to connect with friends, the user can "check in" by notifing the service of her or his location with an SMS text message. The service then sends this information to mobile phones of the user's friends, as well as friends of friends, that are within a ten-block radius.[45]

Melding the geospatial Web with locative media promises that you can leave your mark on the world or read the marks others leave behind, re-creating place in a Borgesian digital map. Artifacts and places will be imbued with memories in a far richer way than ever before. Given a geocoded, Wikipedia-like interface, it is possible to imagine the entire world annotated with histories, becoming as Freud once wrote of the mind in *Civilization and Its Discontents,* a place "in which nothing once constructed had perished, and all the earlier stages of development had survived alongside the latest."[46]

But what of forgetting in this age of locative media? Will this lead to an accumulation of mindless geospatial data-junk that buries spaces? Some personal memories—such as traumatic events—might be better left forgotten. Moreover, locative media have failed to win many adherents and remain in a perpetually about-to-happen future. For its part, Vindigo has not developed any new features in years, and Dodgeball seems too convoluted for the average person to use. On a recent visit, the site advertised that the top user in New York City had checked in merely seventeen times in the last ten days.

RFIDs, Ubiquitous Computing, and the Coming Sentience of the World

If locative media offers sentient users the ability to augment place, other developments—some of which are already in widespread practice—suggest that the less-than-sentient world may soon gain a degree of awareness. Already widely in use, RFID tags are a passive way of giving objects—but also people—the capacity to tell their stories. RFIDs are small tags, sometimes cunningly disguised, that require no internal power source but respond to radio-frequency queries from transponders with a distinct signal and are commonly used for inventory tracking in stores. As each RFID has a unique identifier, it can forever be associated with a distinct object. It's a small leap to imagine that RFIDs could also be tagged by their owners so that their stories can be added to. In his book *Shaping Things,* Bruce Sterling suggests that RFIDs could have a positive use in creating spimes, his neologism for objects that can be tagged with cradle-to-grave information about where they have been, where they are, and where they are going. The origin, conditions of manufacture, and ultimate destination of an object can all potentially be tracked through its RFID.[47]

The result of this utopian vision is to make visible a genealogy of objects for ecological and political purposes. As Walter Benjamin once wrote:

> The cultural heritage we survey has an origin that we cannot contemplate without horror: it owes its existence not merely to the effort of great geniuses who created it, but to the anonymous toil of their contemporaries. There is not a single artifact of culture that is not simultaneously an artifact of barbarism. And just as no artifact is free of barbarism, so too the process of its reception, by means of which it has been passed on from one recipient to the next, is equally fettered.

Being aware of such a Benjaminian genealogy of the object, Sterling suggests, might lead us to radically rethink the social and ecological impact of our purchases.[48]

But RFIDs have a dark side. In *Spychips,* Katherine Albrecht and Liz McIntyre suggest that they are the gravest of threats to privacy. Already in 2001, they observe, IBM had a patent for tracking individuals with RFIDs, and Verichip has developed and received approval from the FDA for human-implantable RFIDs. Chillingly, Verichip suggests that implanted RFIDs could be used to track guest workers in the United States, conjuring a future out of *Logan's Run.*[49] But Albrecht and McIntyre observe that RFIDs don't need to be implanted to track us. Since RFIDs are used as theft-prevention devices, they are, like some virulent form of insectile parasite, hard to destroy and generally invisible, lurk-

ing in the products you wear or bring wherever you go, ready to give themselves up to a radio-frequency query and, if purchased with your credit card, forever identifiable with you. Assuming a will on the part of marketers or the government, it is trivial to construct a *Minority Report* style system that would use RFID-bearing clothing and personal items to actively track you through your daily travels. As yet, Albrecht and McIntyre observe, no foolproof way for deactivating or killing undetected RFIDs has been identified.[50]

Tracking individuals using RFIDs is already possible. At LEGOLAND® Billund, the KidSpotter service, introduced in 2004 by the amusement park and the Tryg insurance company, employs RFIDs to help parents keep track of their children. Children enrolled in the system wear a special Kidspotter wristband with a tag the size of a matchbook attached. When parents send an SMS message to the system, they receive a return message containing their children's coordinates, which they can then check against a special map of the park.[51]

But RFIDs still suggest that objects will be passive. The RFID is a passive tag waiting to be activated. Things, however, are beginning to acquire a degree of contingency, gaining the ability to talk back. In the 2005 report *The Internet of Things,* the International Telecommunications Union predicts a "new era of ubiquity" available anywhere, anytime that will permit connections between humans and things (H2T) and between things themselves. Ultimately, thing-to-thing (T2T) communication will circumvent communicative networks between humans.[52]

In this scenario, the formerly inanimate other will be able to report back about its location, condition, and needs. Things will cease to be mere objects, commodities, or fetishes valued by humans. Exceeding anything that Karl Marx could have ever imagined, things will become active, even sentient, observers, able to communicate with each other as much as with us. Our age-old animist dreams of a world imbued with spirits and personalities may be around the corner.

Like the animist spirits of the *genius loci,* locative media, RFIDs, and the Internet of things are premised on their invisibility, on a near future in which an invisible data overlay blankets the earth. Meanwhile, not only devices (like mobile phones and PDAs), but also furniture (like chairs and tables), objects (like trees and street signs), buildings (like monuments and apartment buildings), and landscapes (like forests, deserts, and riverbeds) become sentient information platforms—sensors to collect and send data to whoever is out there to collect, analyze, and read it.

And like all spirits, these could be dangerous; not only do we have the dystopian scenarios of the geospatial Web filled with geo-spam and our every

Box 1.4 Turning off Ubiquitous Computing

From Adam Greenfield, "Thesis 77 Everyware must be deniable," in Everyware (Berkeley: New Riders, 2005), 246–247.

Our last principle is perhaps the hardest to observe: ubiquitous systems must offer users the ability to opt out, always and at any point.

You should have the ability to simply say "no," in other words. You should be able to shut down the ubiquitous systems you own and face no penalty other than being unable to take advantage of whatever benefits they offered in the first place. This means, of course, that realistic alternatives must exist.

If you still want to use an "old-fashioned" key to get into your house, and not have to have an RFID tag subcutaneously implanted in the fleshy part of your hand, well, you should be able to do that. Should you want to pay cash for your purchases rather than tapping and going, you should be able to do that too. And if you want to stop your networked bathtub or running shoe or car in the middle of executing some sequence, so that you may take over control, there should be nothing to stand in your way.

In fact—and here is the deepest of all of the challenges these principles impose on developers and on societies—where the private sphere is concerned, you should be able to go about all the business of an adult life without ever once being compelled to engage the tendrils of some ubiquitous informatic system.

In public, where matters are obviously more complicated, you must at least be afforded the opportunity to avoid such tendrils. The mode of circumvention you're offered doesn't necessarily have to be pretty, but you should always be able to opt out, do so without incurring undue inconvenience, and above all without bringing suspicion onto yourself. At the absolute minimum, ubiquitous systems with surveillant capacity must announce themselves as such, from safely beyond their field of operation, in such a way that you can effectively evade them.

The measure used to alert you needn't be anything more elaborate than the signs we already see in ATM lobbies, or anywhere else surveillance cameras are deployed, warning us that our image is about to be captured—but such measures must exist.

Better still is when the measures allowing us to choose alternative courses of action are themselves networked, persistently and remotely available. Media Lab researcher Tad Hirsch's Critical Cartography project is an excellent prototype of the kind of thing that will be required: it's a Web-based map of surveillance cameras in Manhattan, allowing those of us who would rather not be caught on video to plan journeys through the city that avoid their field of vision. (Hirsch's project also observes a few important provisions of our principle of self-disclosure: his application includes information about where cameras are pointed and who owns them.)

All of the wonderful things our ubiquitous technology will do for us—and here I'm not being sarcastic; I really do believe that some significant benefits await only our adoption of this technology to appear—will mean little if we

don't, as individuals, have genuine power to evaluate its merits on our own terms and make decisions accordingly. We must see that everyware serves us, and if and when it does not, we must be afforded the ability to shut it down. Even in the unlikely event that every detail of its implementation is handled perfectly and in a manner consistent with our highest ambitions, a paradise without choice is no paradise at all.

move tracked with RFIDs, but what might happen if every light bulb insisted on leaving behind its life story or if a printer reported on what you printed?[53]

Conclusion

Today, Augé's solitary non-places are an artifact of the past. We will never be alone again, except by choice. It is likely, however, that new forms of disconnect and alienation will arise. Being too connected may become more of a problem for us than loneliness. Dwelling in the virtual—be it in the World of Warcraft or on a Blackberry—can already be a dangerous addiction that destroys families.

Global connections versus local disconnections, the growing overlap of local and virtual presences, telecocooning, the emergence of real virtual worlds, and the suggestion that locative media will utterly reconfigure our relationship with place all offer opportunities as well as challenges. Place, it seems, is far from a source of stability in our lives, but rather, once again, is in a process of a deep and contested transformation.

Notes

1. The public sphere is "made up of private people gathered together as a public and articulating the needs of society with the state." Habermas, *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society* (Cambridge, MA: MIT Press, 1991), 176.

2. Baudelaire, "The Painter of Modern Life," in *My Heart Laid Bare and Other Prose Writings,* 34 (London: Soho Book Company, 1896).

3. See Benjamin, "The Paris of the Second Empire in Baudelaire" in *Charles Baudelaire: A Lyric Poet in the Era of High Capitalism.* (London: New Left Books, 1977), 37; Anne Friedberg, *Window Shopping: Cinema and the Postmodern* (Berkeley: University of California Press, 1994), 36–37.

4. Simmel, *Soziologie: Untersuchungen Über Die Formen Der Vergesellschaftung* (Berlin: Duncker & Humblot, 1958), 486.

5. See Richard Sennett, *The Fall of Public Man* (New York: Alfred A. Knopf, 1974); Guy Debord, *The Society of the Spectacle* (New York: Zone Books, 1994).

6. Jacobs, *The Death and Life of Great American Cities,* (New York: Vintage, 1961). See also Lynn Spigel, *Make Room for TV: Television and the Family Ideal in Postwar America* (Chicago: University of Chicago Press, 1992); Spigel, *Welcome to the Dreamhouse* (Durham, NC: Duke University Press, 2001).

7. Augé, *Non-Places: An Introduction to the Anthropology of Supermodernity* (New York: Verso, 1995).

8. Brian Niemetz, "Café Regulars Work With Perks," *New York Post,* May 21, 2007, http://www.nypost.com/seven/05212007/atwork/coffee___to_stay_atwork_brian_niemietz.htm.

9. Ithiel de Sola Pool, *The Social Impact of the Telephone* (Cambridge, MA: MIT Press, 1977).

10. Scannell, *Radio, Television and Modern Life: A Phenomenological Approach* (Oxford, UK: Blackwell Press, 1996), 76.

11. Abler, "What Makes Cities Important," *Bell Telephone Magazine* 49, no. 2 (1970): 10–15.

12. Baudrillard, "The Ecstasy of Communication," in *The Anti-Aesthetic,* ed. Hal Foster, 127 (Seattle: The Bay Press, 1985).

13. Ling, *The Mobile Connection: The Cell Phone's Impact on Society* (San Francisco: Morgan Kaufmann, 2004), 57–82.

14. Habuchi, "Accelerating Reflexivity," in *Personal, Portable, Pedestrian: Mobile Phones in Japanese Life,* eds. Mimi Ito, Daisuke Okabe, and Misa Matsuda, 179 (Cambridge, MA: MIT Press, 2005); Kenichi Fujimoto, "The Third-Stage Paradigm: Territory Machines from the Girls' Pager Revolution to Mobile Aesthetics," ibid, 10.

15. Ling, *The Mobile Connection,* 123–143.

16. eTForecasts, "Cellular Subscriber Forecasts by Country," http://www.etforecasts.com/products/ES_cellular.htm.

17. Erika Brown, "Coming Soon to a Tiny Screen Near You," *Forbes.com,* http://www.forbes.com/forbes/2005/0523/064.html.

18. Brad Smith, "Texting Knows No Bounds," *Wireless Week,* October 15, 2005, http://www.wirelessweek.com/texting-knows-no-bounds.aspx.

19. Contrast with David Derbyshire, "How Children Lost the Right to Roam in Four Generations," June 15, 2007, *The Daily Mail,* http://www.dailymail.co.uk/pages/live/articles/news/news.html?in_article_id=462091.

20. Ito, "Intimate Visual Co-Presence," (paper, UbiComp 2005, International Conference on Ubiquitous Computing, Tokyo, Japan), http://www.itofisher.com/mito/archives/ito.ubicomp05.pdf.

21. See Ito, "My First DS Backchannel," Mizuko Ito Weblog, http://www.itofisher.com/mito/weblog/2006/05/my_first_ds_backchannel.html; Ito, "Gotchi Networks,"

Networked Publics Weblog, http://networkedpublics.org/portable_media/gotchi_networks.

22. Hugo, *Notre-Dame de Paris* (New York: Penguin Books, 1978), 188 and 195.

23. William Mitchell, *City of Bits: Space, Place, and the Infobahn,* (Cambridge, MA: MIT Press, 1995).

24. Benedikt, *Cyberspace: First Steps* (Cambridge, MA: MIT Press, 1991).

25. Gibson, *Neuromancer* (New York: Ace, 1984).

26. Castronova, *Synthetic Worlds: The Business and Culture of Online Games* (Chicago: University of Chicago Press, 2005).

27. Joe Rybicki, "The Real and the Semi-Real," Joe Rybicki's 1UP Blog, http://www.1up.com/do/blogEntry?bId=6883235&publicUserId=4553267; "Rival Guild crashes WoW funeral (video!)," NeoGAF forums, http://www.neogaf.com/forum/showthread.php?t=94595.

28. See James Lee, "From Sweatshops to Stateside Corporations, Some People are Profiting off of MMO Gold," 1UP.com, http://www.1up.com/do/feature?cId=3141815; Paul, "Secrets of Massively Successful Multiplayer Farming," http://www.gameguidesonline.com/guides/articles/ggoarticleoctober05_01.asp; David Barbazoa, "Ogre to Slay? Outsource it to the Chinese," *The New York Times,* December 9, 2005, http://www.nytimes.com/2005/12/09/technology/09gaming.html?ex=1291784400&en=a723d0f8592dff2e&ei=5090&partner=rssuserland&emc=rss.

29. Brown and Thomas, "You Play World of Warcraft? You're Hired!" *Wired* 14.4 (April 2006), http://www.wired.com/wired/archive/14.04/learn.html.

30. On ARGs, see Alternate Reality Gaming Network, http://www.argn.com/.

31. Castells, *The Rise of the Network Society* (Cambridge, MA: Blackwell, 1996).

32. Sassen, "On the 21st Century City," interview by Blake Harris, *Government Technology Interview,* June 1997, http://www.govtech.net/magazine/story.php?id=95352&issue=6:1997.

33. See Kazys Varnelis, "The Centripetal City: Telecommunications, the Internet, and The Shaping of the Modern Urban Environment," *Cabinet Magazine* 17, (Spring 2004/2005): 27–33.

34. Saskia Sassen, *Globalization and its Discontents* (New York: The New Press, 1998).

35. Castells, *The Rise of the Network Society,* second edition (New York: Blackwell Publishers, 2000), 22.

36. danah boyd, "Identity Production in a Networked Culture: Why Youth Heart MySpace," (paper, American Association for the Advancement of Science, February 19, 2006), http://www.danah.org/papers/AAAS2006.html.

37. On Claritas, see Michael J. Weiss, *The Clustered World: How We Live, What We Buy, and What it All Means About Who We Are* (New York: Little, Brown, and Company, 1999).

38. See Anderson, "The Long Tail," *Wired* 12.10 (October 2004), http://www.wired.com/wired/archive/12.10/tail.html; Johnson, "Emerging Technology: Friends 2005: Hooking Up," *Discover* 26, no 9, http://www.discover.com/issues/sep-05/departments/emerging-technology/.

39. Wikipedia contributors, "Geographic information system," Wikipedia, The Free Encyclopedia, http://en.wikipedia.org/w/index.php?title=Geographic_information_system&oldid=100249147.

40. Liebhold, "The Geospatial Web: A Call to Action," *O'Reilly Network,* May 10, 2005, http://www.oreillynet.com/pub/a/network/2005/05/10/geospatialweb.html.

41. See Nick Paumgarten, "Getting There: The Science of Driving Directions," *The New Yorker,* April 24, 2006, http://www.newyorker.com/fact/content/articles/060424fa_fact.

42. "Google Earth: The People GIS," *AECNews.com,* July 11, 2005, http://aecnews.com/articles/1050.aspx.

43. Al Gore, "The Digital Earth: Understanding our Planet in the 21st Century," (speech, California Science Center, Los Angeles, January 31, 1998)1.rtf, http://www.isde5.org/al_gore_speech.htm.

44. For a survey of locative media see Marc Tuters and Kazys Varnelis, "Beyond Locative Media," *Leonardo* 39, no. 4 (August 2006): 357–363.

45. See Johnson, "Emerging Technology: Friends 2005."

46. Freud, *Civilization and Its Discontents* (New York: J. Cape & H. Smith, 1930), 17.

47. Sterling, S*haping Things,* (Cambridge, MA: MIT Press, 2005).

48. Although it is not linked to RFIDs, Natalie Jerimijenko's "How Stuff is Made" (http://www.howstuffismade.org/) is a wiki-driven visual encyclopedia that aspires to produce similar genealogies and can serve as something of a model for the spime.

49. Tiki Barber, Brian Kilmeade, and Kiran Chetry, "Fox & Friends" (interview with Scott Silverman), Fox News Channel, May 16, 2006, transcript at http://www.spychips.com/press-releases/silverman-foxnews.html.

50. Albrecht and McIntyre, *Spychips: How Major Corporations and Government Plan to Track Your Every Move With RFID* (Nashville: Nelson Current: 1998).

51. Will Sturgeon, "Protecting Your ID: RFID chips on kids makes Legoland safer," *Silicon.com,* June 24, 2004, http://www.silicon.com/research/specialreports/protectingid/0,3800002220,39121670,00.htm.

52. International Telecommunication Union, *ITU Internet Reports 2005: The Internet of Things* (Geneva: International Telecommunication Union, 2005).

53. Printers already have forensic information built into them that is printed invisibly on every page. See "DocuColor Tracking Dot Decoding Guide," Electronic Frontier Foundation, http://www.eff.org/Privacy/printers/docucolor/.