

**Running Flat Out on the Road Ahead:
Nationality, Sovereignty and Territoriality
in the World of the Informational Superhighway**

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An Introduction

The digerati tells us that a new world order, or "the digital nation," is being born in cyberspace, and it will bring an end to politics as we know it. While much of this talk is just talk, the wired writings of these "info-insurrectionists" are fascinating speculations about nationality, sovereignty and territoriality in the contemporary world system. Therefore, this paper pokes and prods at the still indistinct expanses of cyberspace, whose n-dimensionalities stretch away in all directions from the on-ramps to the telematic infobahns that we have been told by the digerati are now "the road ahead." Most importantly, for the many pilgrims turning on this telematic road ahead, new kinds of productive power, working within the datasphere's network of networks, are reshaping subjectivity and society at the (wo)man/machine interface. Silicon discourses with their own superconductive disciplinarity are warping the Euclidean spaces and Newtonian times of the modern sovereign state where relative wealth, power or culture have been measured by the movements of physical materials across landscapes or seascapes, against clock and calendar time. As Negroponte (1995) asserts, being digital requires us to rethink the conditions of human existence, because the information revolution is not about moving matter, or "atoms," as much as it is centered upon coping with flows of information, or "bits."

This shift from the rhetorical register of atoms to that of bits provides the primary pivot for this paper. It asks if a world where bits displace atoms will become one in which the realist

games that nations have played within an "international" politics of modern sovereign states can continue. In asking, the machinic metaphors of computer codes and telematic talk will be tortured and tested to extrude some new signs of this bit-born(e) side of the New World Order. Its strategic semaphore signals snap in the data flows and code formations rushing alongside each other on the road ahead into cyberspace. Their political significance will be searched, selected and stabilized in the following webwoven narrative, which questions the websites of this new bit-born(e) telemetrical domain where websights often incite resistance to informational change as well as excite devotion to the old registers of atom-bound territoriality. Codes of nationality, sovereignty, and territoriality concocted out of the "real life" (RL) of atom-states may not access "virtual life" (VL) in bit-states. Consequently, we need to head out on infohighway to survey influences of the digital roadbeds and telematic roadhouses branching out along with the information superhighway.

The information superhighway at this juncture represents a vast grid of multimedia/multilingual/multivalent VL spaces tunneling through a diverse array of monomedia/monolingual/monovalent RL settings. Like the Cold War system of federal interstate freeways in the United States, the advent of information superhighway traffic often is a blockbuster, breaking apart hitherto more culturally integrated, social homogenous, or politically organized blocks of human settlement, with the information explosions of the digital revolution, into

many more diverse and divided informational fragments. For the most part, these exploded fragments also are falling back to earth in ways that worsen the already tremendous material inequalities created during the eras of global industrialization.

Anglo-American infotelcos, like the new MCI/BT combine, incessantly beam TV promos at their customers, asserting that "the Internet is utopia," where "there is no race, no gender, no class, no age, only minds in communication," and then begging the basic question: "Is This a Great Time, or What?" The greatness of this time, however, is unclear; indeed, it is an era characterized by tremendous contradictions between VL possibilities and RL actualities. To be informatic about it, many North Americans swapped data packets on dial-up connections at 56,000 baud, while phone lines in Madagascar lose most messages at 300 baud--the slowest possible infotransmission rate (Wresch, 1996: 130). The United States and United Kingdom publish nearly 40 percent of all scientific articles, South Africa and Zimbabwe, which are the leading African centers of scientific research public .439 percent (Wresch, 1996: 84). North America now annually publishes 461 book titles per million population, and Africa publishes 29 titles per million population (Wresch, 1996: 39). Kenya has one phone line for every one hundred people, Canada and the United States have fifty-four (United States Bureau of the Census, 1993: Wresch, 125). Finally, North America has over 5,400 on-line data bases, or 71 percent of the world's total, while Africa has 8 on-line data bases, or less than 1 percent, a figure that South America, Eastern

Europe, or Asia also do not exceed (Wresch, 1996: 97). The Internet still is essentially a very Anglophone world in which IBM, Compaq, Digital, Apple, Hewlett Packard, Microsoft, or Oracle produce almost all of the hardware and software, and North American or European telcos support most of the connectivity arrangements. ASCII implicitly sums up the digital planet at this time; it is one dominated by American Standard Codes for Information Interchange.

So MCI is mistaken: the Internet carries many signs of race, gender, class, age, and nationality in its everyday operations, but it also might be right in suggesting this is a great time. Oddly enough, the Net constitutes an utopian space, or a nowhere/everywhere, which is populated by millions of "netizens," whose collective sense of their common possibilities and actualities are corroding many existing principles of nationality, territoriality and sovereignty, because they are still pegged to the assumptions of atom(ic) existence. On one level, the Internet appears to be a vast intranet for the still quite powerful advanced industrial West, whose influences are felt as the effects of exocolonizing extranets by the very weak, arrested, non-industrial Rest, carrying the cyberporn of Occidentalosis everywhere at microwave or laserlight speed. There are signs of these tendencies, but, on another level, the Internet, and all of its many parallel or successor networks, also constitute a new supra-national, post-territorial, anti-sovereign, machinic formations, whose destabilizing effects can be experienced everywhere and anytime its on-line VL practices pervade off-line RL existences.

Consequently, we need to reexamine the same question that Susan Strange addresses in The Retreat of the State, namely, how and why "the territorial boundaries of states no longer coincide with the extent or the limits of political authority over the economy and society" (1996: ix). But, we should push beyond Strange's incomplete tour d'horizon to ask a more fundamental question, because she looks at how atoms are bundled and bounded by territorial borders. The new authors of political power are rewrighting states, societies, and economies as bits whose telemetries no longer necessarily coincide with old atom-based territorial boundaries. Who then is/are the new author(s) of post-atomic, embitted power/knowledge in economic life or social formations?

A Note on Method

As strange as it may sound, reality does not just exist as such. Its tone and texture needs to be made, and then remade, everyday in all of the ways that language captures and contains its textual totalities through stabilized discursive representations. Who makes these representations, and for whom, and by what processes of production? These questions define many key steps in the productive activities of power, so any means that can be found to shake/shock/stop their workings could disclose a great deal about the ontocratic reach of language. This reach can be quite extensive; indeed, to read Edmund Burke against the conservative cut of his concepts, any language can be, in many ways, seen as a cognitive contract between the living, the dead, and the yet to be

born, which carries traces of presence or reveals marks of absence in the multiplicitous contacts of its linguistic signifiers with all of what are taken as the real world's referents as they provisionally are captured and contained as language's ontic signifieds. With words, one (re)cognizes the world in some determinate historicized fashion, and any language's old word order sustains, in some sense, its entire old world order.

To renegotiate these cognitive contracts, semantic subversion might prove quite helpful in revising the consensual conventions of conceptualization that underpin the representational order of the world. The pancognitive practices of language's panauditory and panoptical regimes are borne by bits and pieces of linguistic code.

These routers of reality, switches of sense, capacitors of cognition, or filters of feeling group together (in)significance through many mazes of meaning from the past, present or future in the sights and sounds of language. Such juris/diction, or normative law-giving speech, needs to be subverted, particularly now as the new world ordering of informational networks remask the old world order with new connective circuitries.

Therefore, this analysis must be one of etymological excess, linguistic punniness, and semantic subversion. Otherwise, the disciplinarity of dictionaries and programmatic of grammars will enforce the existing terms of language's cognitive contract in older, more fixed (re)cognitive fashions, preventing a new, more fluid (pre)cognitive manner of filling our meaningful contact with emergent yet-to-be-signified referents in the fullness of all new

presences. New words might open dead circuits, flip old switches, or make fresh connections to carry finer sound, fuller color, and fitter tone from the workings of real life to language's workups of lived realities. Machine talk, in particular, may be the best way to talk about machines. And, in a world of bits, the fit of bits into the world in question requires writers to wright new words that might throw their readers into fits.

A Digital Ontology: Cyberspace as Third Nature

Cyberspace is not a notion about things to come; its bits are embedded within the material condition of many things already at work today. A census of Internet users needs to be updated daily or weekly, not monthly or yearly, to keep accurate track of its exponential growth rates. Many millions of mainframe and personal computers--some 40 million at this time--are linked into this network, directly or through other smaller networks. How many human users actually utilize the Internet from these multiple points-of-entry is less clear. Numbers can be cited, but they become inaccurate even as they are reported. Most of the world's money, almost all of its communications, much of its transportation system, and many forms of data archiving now move by means of operations in cyberspace. In many ways, it already is the age of the smart machine (Zuboff, 1988). Cyberspaces could be understood as the latest manifestation of Nature's anthropogenic pluralization. Human beings always have reshaped their biophysical environmental settings, or a terrestrial "first nature," through purposive-rational action, as illustrated traditionally by the

territorialized "second nature" of technological artifacts fabricated as part and parcel of human industrial and agricultural activity in the vast arcologies of post-Neolithic civilization (Lukács, 1971). Informationalization goes one more iteration beyond these technical artifices of second nature, creating the ultimate imagined community (Anderson, 1991) from the hyperreal domains of the digitalized "third nature" generated within cybernetic telemetricalities.

Prevailing concepts of power, subjectivity, and community, may not, however, fully capture the atomic-level changes happening in both the industrial technosphere of modern second nature and ecological biosphere of premodern first nature as these elaborate human nature constructs become overlaid, interpenetrated, and reconstituted in the embitted postmodern "third nature" of an informational cybersphere/telesphere (Lyotard, 1984; Jameson, 1991; and, Jones, 1995). As Vattimo argues, "the society in which we live is a society of generalized communication. It is a society of the mass media" (1992: 1). Power shifts focus, speed overcomes space, orders become disordered, time moves standards, community loses centers, values change denomination as the atom settings of industrialized human agency are being shaken completely into bits.

Third nature expresses its bit forms on the cyberscape/infoscape/mediascape of telemetricality. It too is an anthropogenic domain, but built on-line out of "bits" (Lucky, 1989). If, as Smith contends, "it is in the production of nature that use-value and exchange-value, and space and society, are fused

together" (1984: 32), then embitted third nature is now recombining society with space renders these fusions in electronic and photonic forms, by producing exchange-values in unprecedented ways from the use-values of the electromagnetic spectrum, the industrial era's telecommunication infrastructures, and the digitized restructuring of labor and leisure (Luke, 1989).

"As a social product," the embitted spatiality of third nature remains, like first and second nature, "simultaneously the medium and outcome, presupposition and embodiment, of social action and relationship" (Soja, 1989: 129). Digitalization can shift the sites of human agency and social structure into registers of informational bits from those of manufactured matter. Most importantly, the setting of agency, the character of power, and the structure of meaning seem to change in the n-dimensionality of this emergent third nature as telemetrical bit-states displace territorialized atom-states as sites of power/knowledge.

From Geography to Infography

While such digital ontologies might invite us to reflect upon digital beings and virtual times (Luke, 1996), third nature is drawing many microsoft explorers to its digital domains in droves--all eager to navigate its netscapes so that its mosaics of meaning might be better managed by all operating systems. As Ó Tuathail asserts, "geography is about power. Although often assumed to be innocent, the geography of the world is not a product of nature but a product of histories of struggle between competing authorities over the power to organize, occupy, and administer space" (1996:

1). Essentially, this study will try to upgrade and refine Ó Tuathail's insights about geography and terrestrial space by shifting our focus to the informational writing and wrights of cyberspace. There one finds many new eyes and voices, all seeking to envision its expanses and make claims about its qualities as they eagerly grab for access, domains, and connections within its n-dimensional ambit. As the worldwide webs of informationalized cyberspace proliferate at near paralyzing speed--in January 1993, for example, there only were 50 known web servers, while there were over 100,000 by January 1996 (Tapscott, 1996: 21)--a new class of digital intellectuals performing symbolic analyst labor for the wired elites (Brockman, 1996; Lasch, 1995; and, Reich, 1991) are hustling to define or articulate their sense of info-power in new intellectual discourses, which one might label "infography."

Like geography, infography mostly is a foreign imposition, but it is not, as Ó Tuathail aptly describes geography, "a form of knowledge conceived in imperial capitals and dedicated to the territorialization of space along lines established by royal authority" (1996: 2). It too is a verb, but its information-writing mostly parallels the disparate agendas held by the data wrights of informational/telematic/digital power in major transnational computer, software, and telecom corporations. These ambitious enterprises are seeking to create/seize, make/master, or generate/organize cyberspace, as Ó Tuathail says of geographers, "to fit their own cultural visions and material interests" (1996: 2). So just as the medieval vision of space was religious, and its

maps pivoted around Jerusalem, Rome or Mecca to represent the known expanses Eurasia, and new vision of geographic space had to re-envision that world space instead as the territorially-bordered, imagined communities of nation-states seen from London, Paris or Madrid, infographers now are remapping the world of print capitalist nationalism around new hypertextual capitalist transnationalisms, showing corporate intranets, government extranets, and global internets spinning new webs of infographed telemetrical dominion over/through/around the sublated boundaries of geographed territorialized space. Trade no longer follows the flag, it comes on the Net; hence, the rewrighting of space through infography simply articulates the rewriting of power/knowledge with the closed codes of informationalization.

Telecommunicative cartographies of telematic nodes and data links are rewriting/rewrighting older imperial map-making practices, which scrupulously strove to document all contiguously containerized lands and waters for some sovereign authority. Of course, infography does not erase geography, just as geography could not efface medieval theographies: one can map the world from Jerusalem or Mecca, and so too are the maps from London and Paris still in use. Nonetheless, fresh maps of new born(e) cyberspaces, whether they plot new paths of some telco's broadband backbones, the points of presence of Internet up-link ports, the dynamics of Wintel vs. Mac OS population growth among world PCs, the density of WWW servers, or the frequently and source of new netcast hits, are giving us infographies of life out on the road ahead.

Atom-States Against Bit-States

Splitting the states of atomic being "off-line" follows from the acceptance of informationalized bits "on-line" in lieu of material wholes face-to-face. In a world where TV sets already resculpt reality, it is not a big jump to accept microprocessors and high-speed telematic networks recreating set analog TV reality waves as digitized televisual reality particles on the monitor. Booting up in RL to head out into VL on the info highway poses today's most basic philosophical question: "The splitting of viewpoint," the sharing of perception of the environment between the animate (the living subject) and the inanimate (the object, the seeing machine), which leads, in turn, to (con)fusion of "the factual (or operational, if you prefer) and the virtual; the ascendancy of the 'reality effect' over a reality principle already largely contested elsewhere" (Virilio, 1994: 60). Splitting sight, then, also splits sites, creating fresh reality effects in many new spaces beyond, behind and beneath the domains occupied principally by atoms. Computer images of the real space of material objects or data profiles of the real characteristics of animate subjects (re)/(dis)place atomic observables with nonobservable bits. Human agency and social structure, at the same time, jump "from the actual to the virtual" (Virilio, 1994: 67) to roam through hypertopic terrains on hyperchronic timelines. Out on the infobahn and down in the central processors, human agents must coexist through "the automation of perceptions" and "the innovation of artificial vision, delegating the analysis of objective reality to

a machine" (Virilio, 1995: 59), because machinic formations arrayed in telematic mediascapes are the objective reality that automatic perception must scan and react to as virtual clusters of bits. A comparison of these templates, as ideal types in a brief conceptual contrast, might lend more substance to Negroponte's postmodernization schema.

In cyberspace, time warps and space distorts, leaving zones of communicating laserlights and wireless transmissions as the virtual spaces which human beings must traverse. On-line communication, which is mediated quite often through the blank screens and dead connections of the World Wide Web's wildly worsening wait, can approach light speed in megabytes of fiberoptic blitzkrieg. As Virilio claims, virtual reality is running on warp drive. Because of "the principle of instantaneous emission and reception" of bits through the ether, "change-over has already superseded the principle of communication which still required a certain delay," leaving cyberspatialized virtualities recalibrating all conventional notions of "the real and the figurative, since the question of reality would become the PATH of the light interval, rather than a matter of the OBJECT and space-time intervals" (Virilio, 1994: 74). Chronopolitics in states of bits, then, remediate power as hyperkinetic speed effects, whose coacceleration and asynchronous modes of transferring influence sublate geopolitics in states of atoms where power mediates matter filling spatial expanses, energy traversing territorially objectified space-time intervals, or information communicating content as its

encoded matter diffuses across space and advance in time.

Cyberspace problematizes a geography of space and place. What has been central to living beings, transpiring through their biotic times at metabolic speed, is place. Now, Virilio suggests, "in some way, place is challenged. Ancient societies were built by distributing territory. Whether on the family scale, the group scale, the tribal scale or the national scale, memory was the earth; inheritance was the earth. The foundation of politics was the inscription of laws, not only on tables, but in the formation of region, nation or city. And I believe this is what is now challenged, contradicted by technology" (1983: 142). Politics once was the polis enscribing its jurisdiction across the atoms of lands, peoples, and their settlements. The bottom line of informationalization may be this deterritorialization; and, by extension, its disembodiment, disinheritance, and dismemberment of terrestrialized social emplacements.

How much of this reasoning, however, rests upon moving atoms instead of bits? Is place totally challenged, or is it simply shifted into new terrains? Contemporary infographic societies may be built by distributing network bandwidth, routing data packets, or colonizing electromagnetic spectra, but physical infrastructures are still quite necessary. The foundation of cyberpolitics then can be found in systematizing operations, fixing code routines, and printing circuits. After all, one can inscribe laws on silicon, fiber optics, and disk drives as well as stone tablets, and thereby generate informatic regions, nations, cities. Indeed,

cybertechnics repositions living beings in neobiotic times and spaces where they seem to transpire telematically at extrametabolic speeds and diffuse into postmetabolic spaces. Some memories may remain tied to the earth, but one need not leave their containers behind to pass through Heaven's Gate to see how permanent web memorials are proliferating on-line where the multimediated memories of dead and departed souls or entire lost peoples can be pulled down by interactive browsers ad infinitum. On a family group, tribal or national scale, one discovers that cyberspaces also provide flexibly scaleable memorializations that are as reliable and durable as the earth, while having the added virtues of flexibility and accessibility to serve members of mobile, distributed, and remote users. The fact that "none of the so-called great politicians today is able to approach" (Virilio, 1983: 142) this sort of cybermodernity from fixed sites in atom-states, does not mean that any great cyberpoliticos are not working on their "killer applications" in bits and bytes.

What do Negroponte's elegant digital ontologies for the atom and bit state imply for the bodies politic of international relations? To keep with his crude, but effective, distinctions, most of what we understand as international politics applies to territorially arrayed nation-states which contain and channel the energies of their physically constrained inhabitants and lands in the realm of an "atom" state rather than the ambit for a state of "bits." Yet, what if the atom-state can be displaced by bit-states? What if the locus of governmentality can be upgraded as a

portfolio of power applications from, as Virilio foresees, "that of an inert territorial body" to one of "the centralized and miniaturized control of a constantly active, yet invisible and unknowable, body of communications" (Virilio, 1990: 94)? What new social code might bring power out of its solid state of atom agency and structure into much more amorphous conditions of bit-borne agency and structure? Perhaps Negroponte's naive narratives about world civilization making another great transition--this time from off-line/nondigitized atoms to on-line/digitized bits--reveal the engines of governmentality undergoing a digital refitting. Out on the Net, government can become, to paraphrase Foucault, the right informational disposition of atomic things telematically arranged so as to lead to a convenient digitalized end (Foucault, 1991).

The density of net-based dromological systems in the bit-state, then, acquires its own quiddity. In the last analysis, digital beings share time and reparse space in their internet protocol packets composing the mediascapes of third nature. For Virilio, the built environments of atomic second-nature--cities and towns--have not expanded as profusely as the fractalizing domains of VL out on the Net:

If you want proof, you need only look at a map of the physical geography of France....this one showing the totality--visible and invisible--of communication networks: canals, railways, airways, highways and, from the visual path of Claude Chappe's ocular telegraph to the electronic age, radar. We immediately realize that during the last two centuries of our history, the physical geography of France has completely disappeared under the inextricable tangle of different media systems; that not only does delocalization occupy more territory than does localization, but it occupies it in

totalitarian fashion...make the whole thing entirely techno-logistical; then you will have before your eyes the true physical body of the modern totalitarian state, its speed-body (Virilio, 1990: 91-91).

Dromological net-centric existence, then, is delocalized, mobilized, and instrumentalized living as a speed-body within the hyperchronic flow and hypertopic domain of speed. The totalizing reach of the media--electronic and machinic--represent for Virilio the inversion of Clausewitzian war reasoning, because the speed-body of bit-states must endocolonize their actual territoriality with virtual telemetricalities. Politics now is war carried on by other means, and the doctrine of security founded upon this recognition leads to "the saturation of time and space by speed, making daily life the last theater of operations, the ultimate scene of strategic foresight" (Virilio, 1990: 92). And, embittered victory in these digitized internal wars comes in fully mediatized on-line form. Indeed, "beating an enemy involves not so much capturing as captivating them" (Virilio, 1995: 14). So the heavy artillery of the bit-state's post modernizing totalitarian regime fires advertorial rhetorics and infomercial rhetorics down all of its circuits and conduits in commodified imageries of communion, desire, and power.

On one level, the inside/outside dynamic of sovereignty might well change as the otherizing discourses of difference and identity open up new notions of community and exchange that could have quite open architectures. Closed architectures of sovereign power typically presume exclusive circuits for the circulation of

authority to guarantee that only one approved type of embodied subjectivity can operate within its domains. Authority accepts embodied atoms in slow-bodies that will act only in the ways and forms that the jurisdictional atom-state approves--it is monological.

A bit-state, however, could accept open architectures and multiplatform diversities, acknowledging any and all alternative interaction opportunities that flow through, with, beneath all other speed-bodies' like-encoded bits. Shared access instead of contiguous aggregation could well bound the scope of bit-state preserves, making possible the coherent organization of mobile, distributed and nonterritorialized communities of governance. Bit-states could be embodied object-oriented mobilities for speed-bodies, and no longer atomic subject-centered fixities for slow-bodies. In other words, serving some delimited functionality, as with special purpose governance bodies now operating intranationally, might the supplant the creation of some fixed identity, as with modernized territorial nation-states today. Bodies politic, if telematic/electronic/cybernetic, might enact far more limited and much more expansive powers through such object-orientations. Their populations would sort automatically by speed and access in dynamic functionalities instead of searing inactivation by homogenizing all forms and flavors of atoms to accord with one jurisdictional standard of interaction as massed bodies or embodied masses in fixed places.

Bit driven states could well be populated by speed-bodies who regard one another as co-accelerants, time sharers, or telepresent

gatherings. The dromoscopic census taking of shared files, multi-user domains, or threaded interactions in dedicated data streams or stand-alone networks would reveal possibilities for new cyber biopolitical regimes that easily could coexist with atom-states or other bit-states. Netscapes can be closed to outside traffic; but, ironically, their virtual ecologies may wither and die, unlike natural landscapes, if everyone cannot browse across them. Being everywhere and nowhere, the inside can accept the outside, because bits are not exhaustible or exclusive, like atoms.

Cybernetic connectivity in bit-states might interlace everywhere and nowhere, remaking social structure, political power, and cultural values to conform to the time sharing and connection speed of the networks they share. Following Marx, the telematicization of existence determines consciousness; and, "since movement creates the event" in the electronic registers of cyberspace, one finds the telematic reality effect in cybernetic existence "is kinedramatic" (Virilio, 1995: 23). Computer use groups quickly become co-accelerants whose consciousness and action are framed by the ease and speed of their connectivity. Surfing the net, grazing through websites, telepresencing in real-time all over the planet, one becomes a mobile, distributed, or threaded participant in many moving, dispersed, and webwoven communities. Co-accelerants share conventional understandings in their acts and artifacts as their determinate social group coalesce out of parallel processing, time sharing, and compression routines: bodies politic morph into bits politic. Such kinedramatic culture

constitutes and enables an informational subjectivity whose conduct conforms to the demands of rapid connection, intense communication, and frequent cooperation. Connectivity in forms such subjectivities and societies, but "to disconnect is to disinform oneself" (Virilio, 1995: 95).

Atom-states by contrast mostly are fixed in their time, and they fetishize territory, believing no two or more states can occupy the same space simultaneously. One atomic bloc must displace another, and cause the loss of dimension in losing its dimensionality. Bit-states, however, are n-dimensional. They have no exhaustible, exclusive, exceptional dimensionalities to lose. Telemetricalities can, in fact, generate n-dimensional shapes and domains, assuring atomic sovereignty's paralysis. Atom-states share space held as the continuous exclusive occupation of many discrete places, but bit-states would share rates of interaction, acceleration, and transmission accessed discontinuously and nonexclusively.

Bit-states may only be deterritorializing gridworks, netting together functionalities in machine languages, computer time, and network topologies within and without the expanses of territorialized atom-states. Moving bits between nodes, bit-states would be powerpoints whose powers and capabilities might be determined by how expansive, swift, and complex their switches are as well as what do when they rout what to whom and why. The cybertectonics of bit-states could become datafied dwellings, linking thinking/acting/feeling/having/knowing in the emoticons and

cognicons of speed-bodies to asynchronously transferred modes of being. Power no longer would move only as atoms between material volumes and surfaces, where atom-states are coercive figures whose powers and capabilities can be gauged by how extensive, measured, and standardized their jurisdictional domains are as well as what they impose upon whom and how. Bit-states, like American dollars or deutsche marks in the wild zones of the former Soviet Union, would pass through with full legitimacy and complete primacy in any and all domains of atom-state country, where atom-rulers still try to establish their now hollowed-out sovereignties in government language, historical time, and legal topologies under the tracks left by bit-states. Atom-states struggle to synchronously unformatize modes of action in the single-sourced monologics of nationalized imagined community, while bit-states seep through asynchronously transferred modes of action in the cross-platform polynomials of transnationalized operating systems.

A world monetary system perhaps already is a regimen of speed-bodies whose dromologies link every nation's currencies in a perpetual regime of real-time exchange. Through their monies, atom-states also now find their finances, taxes, markets, and economies, informationally and electronically bound together in embitted 24x7x52 equivalence exchanges. Money is information, and information becomes money. Like the European Monetary System, which seeks to systematize the linked economies of the European Community by coding the euro out of many coins to carry its supranational sovereignty and economy through RL time and space,

this Supraterranean Monetary System unifies all of the world's monies in VL info/electro/dromo equivalents of dollarized credits and debits. The value of these data/dollars, in turn, can be gauged by their acceleration, mobility, and dispersion. Parked for a few hours in yen, then marks, then pounds, these data/dollars valorize themselves by exploiting marginal variations in correlative values fluctuating by the minute as each business day begins on the hour in every global time-zone. Global fast capitalism runs on fast money and quickened financial intelligence, which pulls currencies almost entirely away from the control of intranational fiscal, tax, and monetary policies. Speed-bodies need fast money to spend in rapid-fire in quickened markets.

No longer exclusively national currencies, except as the legal tender to fill the basket on one's daily RL trips to the market, transnationalized monies meld in the dromological, informational electrified exchanges of telematic VL networks. Their atoms do not travel fast enough, so their bits break all time and space barriers. Indeed, anyone with a secure cyberspatial network can issue electronic or on-line monies to sustain exchange within its boundaries or anywhere in RL that accepts its VL value system as a convertible currency. Hence, many new Superterranean Monetary Systems, from e-cash, compu-credits or tele-marks to debit cards, infobucks, or e-money, are circulating bits, mostly still denominated in data/dollars, all over the world. Atom-states participate in the informationalization of money, but now anyone can issue any sort of currency as long as some linkage of

convertability links it into the terabyte reserves of the Superterranean Monetary System. Cyberspace is everywhere and nowhere, so all of the world's monies are moving all of the time with essentially full acceptance, although not necessarily full value, into all sovereign territories as their digital (e)quality is channeled into volatile dromoscopic matrices of telematic value.

These telemetrical imperias of monetized data, then, penetrate and obviate the mostly unenforceable claims of exclusivity asserted by any given national dominion of realist state authority.

The methodical movement of stuff is becoming "the instantaneous and inexpensive transfer of electronic data that move at the speed of light....the change from atoms to bits is irrevocable and unstoppable" (Negroponte, 1995: 3-4). Here the rites for celebrating a new power are captured in one megabyte of meaning: the bit-world is irresistible, irreversible, and utterly irreverent in its revolutionizing effects, because bits are fast, cheap, and mobile. Like Marx's money, or "fast capital," Negroponte's information, or "fast data" vanish all that is solid into thin air. Not surprisingly, Bill Gates then sees "the road ahead" tunneling through wormholes of bits into "a friction-free capitalism" out on the Net's "global information market" (1995: 6-7). And, running flat out on the road ahead becomes, as Virilio claims, a work in applied "dromology," or the careful study and application of operational systems rooted in extraordinary speed, because being itself is organized around instantaneous, inexpensive transfers of time-space compressed bits around the world at the

speed of light.

The operational attributes of cyberspace in many ways merely parallel the free flow of transnational capital throughout the world marketplace of today's globalizing fast capitalist economy. Navigating through the WWW emulates Marx's equations of capital's self-valorization: $M + \Delta M = M'$. Information (I) + changes in information vis hypertextually marked changes or connectively mediated hits (ΔI) = information plus (I'). The experience of agency in cyberspace often seems so empowering/enlightening, because one is carried along with the high powers and bright lights of these informational forces. Simultaneously everywhere and nowhere, always in use and in storage, forever saved but also inexhaustible, neither exclusive nor inclusive, the WWW is the perfect superstructural representation of transnationalizing capital's infrastructural productive forces.

Given this insight, Negroponte's profile of the bit and the atom becomes quite helpful: "a bit has no color, size, or weight, and it can travel at the speed of light....It is a state of being: on or off, true or false, up or down, in or out, black or white. For practical purposes we consider a bit to be 1 or 0. The meaning of 1 or 0 is a separate matter" (1995: 14). Atoms, on the other hand, are bundles of materiale, "world trade has traditionally consisted of exchanging atoms... When you go through customs you declare your atoms, not your bits.... The change from atoms to bits is irrevocable and unstoppable" (Negroponte, 1995: 4). The

bit is an abstract state of mobile becoming, while atoms are about concrete conditions of immobilized being. Against the (eu)tope of the bit, the atom is a (nega)tope of government regulations, trade statistics, or frozen fixities.

In the Internet environment, these differences become decisive, because all media in these settings are digital. When everything is multimediated through digitalization, two things happen: first, "bits commingle effortlessly. They start to get up and can be used and reused together or separately; and, second, "a new king of bit is born--a bit that tells you about other bits" (Negroponte, 1995: 18). Once bits can be combined in any fashion as well as coded with reflexive tags to intelligently refashion these combinations, then digitalization can begin to operate on an unstable autopoietic basis. From within a world fixated upon moving, counting, owning, or using atoms, the bit creates "the potential for new content to originate from a whole new combination of sources" (Negroponte, 1995: 19). One potential new content with many commingled points of origin is the utopia of "Cyberia," or new transnational imagined communities arising,

out there in "cyberspace"--the territory or digital information. This apparently boundless universe of data breaks all the rules of physical reality. People can interact regardless of time and location. They can fax "paper" over phone lines, conduct twenty-party video-telephone conversations with participants in different countries, and even "touch" one another from thousands of miles away through new technologies such as virtual reality. All this and more can happen in cyberspace (Rushkoff, 1994: 2).

Commingling bits with bits regardless of time and location, then,

is creating new kinds of bits that claim the life energies of people allegedly heedless of time and location.

In Rushkoff's infography, Cyberia is an imagined community, whose imaginative communitarianism expostulates the existential essences of digital cybernations where the bits of digital personae are both born, and then borne, in computerized codes from boundless universes of data. Breaking all the rules of physical reality, where atom-states rule over piles of atomic matter, Cyberia becomes a state of being, according to Rushkoff, with basically "psychedelic qualities" inasmuch as it leads its partisans to treat the accepted reality of moving atoms "as an arbitrary one, and to envision the world unfettered by obsolete thought systems, institutions, and neuroses. Meanwhile, the cybernetic experience empowers children of all ages to explore a new, digital landscape.

Using only a personal computer and a modem, anyone can now access the datasphere (a web of telecommunications and computer networks stretching around the world and into other space)" (Rushkoff, 1994: 5).

Of course, using "only" a modem-equipped PC typically represents a capital investment of \$3,000 to \$5,000 (US) plus monthly access fees of \$10 to \$100 (US), so entry to this promised land is not cheap. Negroponte, however, dismisses those who worry about "the social divide between the information-rich and the information-poor, the haves and the have-nots, the First and the Third Worlds," because the "real cultural divide is going to be generational" (1995: 6) as "the young" integrate this technology

into their lives first. This glib generational maneuver fails, however, to grasp all of the bigger questions about access, equality and distribution in the digirati's wired world. Like so many revolutionists before him, Negroponte addresses a small, privileged, or wealthy elite. These cybercontras he addresses in universalist Jacobin terms as "you, the reader." Presuming that he speaks to/for all of humanity, he talks to that 35 percent of American families that own computers, the 50 percent of American teenagers who have PCs at home, or the 30 million people worldwide that surf the Net (Negroponte, 1995: 5). To them, or "you, the reader of Being Digital," he can say that their computers will coevolve with them as part of their speed-bodies. Computers are now crawling "into our laps and pockets," so that "early in the next millennium, your right and left cuff links or earrings may communicate with each other by low-orbiting satellites and have more computing power than your present PC....Mass media will be redefined by systems for transmitting and receiving personalized information and entertainment. Schools will change to become more like museums and playgrounds for children to assemble ideas and socialize with other children all over the world. The digital planet will look and feel like the head of a pin. As we interconnect ourselves, many of the values of a nation-state will give way to those of both larger and smaller electronic communities. We will socialize in digital neighborhoods in which physical space will be irrelevant and time will play a different role" (Negroponte, 1995: 6-7). Thus, the digirati tells would-be

infographers "to read yourself into this book" [Being Digital], just as you must with the digital revolution, so you will begin to "feel and understand what 'being digital' might mean to your life" (Negroponte, 1995: 8).

What it means now is quite clear: the digital planet will remain an atom-world in which 6 billion people, minus the 40 million or so already on the Internet, will revolve around a much smaller bit-world snared in new worldwide webs of perpetual communicative interaction spun from within those select digital neighborhoods where physical space is irrelevant and time plays a different role. For those with info-cufflinks or cyber-earrings, personalized infotainment will make the digital planet one with the infographies of their larger and smaller electronic communities. Nation-states will become museum pieces as such digital neighborhoods function as playgrounds for web-wise interconnected selves to assemble ideas and socialize all over the world. But for that remaining 65 percent of American families lacking any PC or that leftover 50 percent of American teenagers without PCs at home, and the 5.96 billion other human beings still living off-line, they will begin to look and feel like pinheads. Being digital might mean one can become netizen whose costume jewelry quickly signs you in and out at will of the cyberspatial telemetries projected from low-earth orbit satellites. But for the nearly 70 percent of humanity who do not have plain old telephone service (POTS) on a personal/family/village level, such rich rhetoric about cyberchickens coming to nest in everyone's informatic pots are

highly alarming. IBM, of course, is cooking up all of its many "solutions for a small planet," and maybe some Kenyan dance bands are composing on their PCs, while a few Italian octogenarians might take musicology PhDs at Indiana University over the Net from Tuscany. For the most part, however, actual physical access to a computer and/or the Internet is not a universally shared good. Any serious infography will show this telematic global village to be still quite small, sparsely populated, and very up-scale.

Negroponte's apparently courageous profile of the bit also promotes a new kind of helplessness, because his narratives of digitized modernization obscure a very problematic truth. Even though we may soon live in a world where making, moving, and managing "bits" will replace more embodied practices, which are rooted in crafting or coordinating "atoms," this bit-driven new cybernetic order actually will use bits to make, move, and manage atoms. A bit-based economy is "one in which fewer and fewer workers will be needed to provide the goods and services" that are required by global markets, which now takes "a drastic toll on the lives of millions of workers" (Rifkin, 1995: xvi-xvii). Telepresent North American managers are able to staff virtual corporations, shop in virtual stores, and interact in virtual neighborhoods because their digital personae have many more megabytes than those who work for them lower down or farther out in the software structures of Internet connectivity. Their bits make other people's atoms move to meet their digital administrative designs, which gives Foucault's vision of governmentality an

important new upgrade.

Discursive Dromocracy from Deliberative Democracy

The world of cyberspace is one of speed in which rapid posting of encoded bits quickly positionalizes all who are attracted to the bits' posting site in a wired whole. These clusters might be one of the best examples of Virilio's informatic speed-bodies or techno-logistical supra-nationalisms (1990: 70-75). As Rheingold asserts, this telematic transformation "from a world of mass into a world of bits has to do not with content and something frozen, but with a continuous stream of discourse," so much so, in fact, that "being online turned out" as thusfar in all existing interfaces "to be writing as performance art" (cited in Brockman, 1996: 241, 243). Infography, then, sees cyberspaces as sites in which one wrights oneself and community out of digitized discursive cites at thousands of bits per second. The digital dromocracy is discursive, and discursivity generates digitized dromocrats. As Brockman says of Rheingold, one might say the same of any and all virtual communitarians: "he has invented his own character-- spokesman, communications expert, celebrity, lecturer, writer, thinker, and wise man, one of the first people to recognize the potential of a new medium for human communication" (Brockman, 1996: 237). Such recognition, however, also implies the Net's potential to mediate the communication of new humans, who would turn the discourse of digital dromocracies against the more deliberate practices of atom-bound liberal capitalist democracies

as they now stand so victoriously alone and hegemonic at the end of history.

The work of nations in the atom-world, which Reich (1991) anticipates must change, often may be undercut by the workings of cybernations from the bit-world as people (de)port themselves as bits into domains where the laws made for atomic personae do not pertain. The deliberative democracy of face-to-face embodied politics is being challenged by the discursive democracies of embitted use.groups, list.serves, and network.communities. Esther Dyson argues that these fast, disembodied, textualized exchanges of networked communities will soon exceed on-line commerce and socializing in importance. In fact,

it's magical how its going to affect people and relationships. A new kind of community, not a culture, is coming. The difference between a culture and a community is that a culture is one-way--you can absorb it by reading it, watching it--but you have to invest back in a community. Assent this return investment, it's not really a community. People will be investing in sharing content and spending measures to each other, in spending time together, and, in part, that's what builds these communities (cited in Brockman, 1996: 86).

This magic that Dyson celebrates, of course, might also be seen as secession, insurrection, or independence from fixed territorialized national cultures and governments. To the extent that people invest their time, energy and spirit into

cybercommunitarian contacts, they must rob any embodied face-to-face groups of their human presence.

Dwelling as bits in digital domains, then, on their informationalized fast tracks certainly will affect people and their relationships. Those off-line will get less and less communal investment, and those on-line undoubtedly will prove to be primary. The deliberative processes of embodied politics with its slow systems of collective decision-making to create public goods as well as public duties are becoming a drag upon digitized personae of democrats. Dyson sees their discursive exchange of messages leading to something better--faster, smaller, closer or, smarter and more efficient, personal, flexible, or intimate--than democracy.

The real issue isn't democracy versus tyranny. It's individual choice versus control imposed by big forces, whether it's big government or mass media. Quite simply, democracy is the tyranny of the majority over the minority. In more and more spheres of life, ranging from your choice of breakfast cereal to the school where you send your children, to the books you read or what you see on the screen, we're moving to a fragmented individual-choice world. It's not between democracy and tyranny. It's decentralization. More and more things are chosen individually. It's the primacy of the small unit. You can now be as efficient in a small unit as a big unit....The real issue regarding the Net is going to be people's ability to use it, their education, and their literacy. The world will definitely favor the educated (cited in Brockman, 1996: 86-87).

Discursive democracy, therefore, is a fragmented and fast world of individual choice by speed-bodies, which features the educated minorities using their literacy, their education, and their efficiency on the Net to avoid the atom-state's tyranny of the

embodied majority over them.

Decentralized, self-selected, fragmented, but also communally-messaged, digitally-invested, content-distributed, discursive democracy can leverage the speed of networks against the stasis of states, and thereby free its bit-world members from the majoritarian tyrannies of unified collective-choice in the atom-world of face-to-face embodied politics. Mass democracy in Dyson's mind is mostly an inefficient giveaway system, whereas discursive democracy is one of decisive meritocracy. Her true cyberconsciousness tells her,

It was easy enough to take the land and redistribute it to the peasants if you wanted to. It was easy enough to take the money and the capital and redistribute them to the workers of the world, as the Soviets showed, even though it wasn't terribly successful. But you can't take knowledge and just give it to people. They have to take the knowledge. They have to learn. We're becoming a society in which people who don't contribute really can't get anything, and you can't really redress that imbalance. Individually, people have to learn that they must contribute....It's not strange to me that some people don't understand these new ideas concerning the Internet and the communications revolution (cited in Brockman, 1996: 87).

So the communications revolution is one of small-scale messaging, which creates innumerable little communities of those who take knowledge and then contribute to it out on the Internet. "The fact," Dyson suggests, "that you can send as easily as you can receive makes a huge difference" (cited in Brockman, 1996: 85), but the huge difference is pitched against the deliberative discussion of cooperating inhabitants of real life states. Indeed, these dinosaurs "just don't get it." The Net means "just

do it" by "taking the bits and run," instead of redressing inequalities of access to, use of, or benefit from the atoms produced inside of atomically in-stated economies and societies.

Of course, Dyson may be quite right about how communities can form quickly on a small-scale out on the Net, but these info-insurrectional ideas leave many corrosive marks on the prevailing systems of political community, economic development, and cultural identity in atom-states.

Kanter characterizes this divide as a line falling between the "world class," which acts world class in terms of its capabilities and assets and whose members could be considered "cosmopolitans" with "globalist" agendas, and the class of "localists," whose constituents are very local in terms of their abilities and resources, which also prompts them to behave as "nativists." Flowing through global markets, "cosmopolitans are rich in three intangible assets, three C's that translate into preeminence and power in a global economy: concepts--the best and latest knowledge and ideas; competence--the ability to operate at the highest standards of any place anywhere; and connections--the best relationships, which provide access to the resources of other people and organizations around the world" (Kanter, 1995: 23). Embedded at fixed sites, "the local class are those whose skills are not particularly unique or desirable, whose connections are limited to a small circle in the neighborhood, and whose opportunities are confined to their own communities" (Kanter, 1996: 23). To succinctly sum up inequality

in a fast capitalist digital economy, Kanter seconds Dyson's cybercommunitarian fixations on personal choice. One can distinguish between abstract choice and concrete loyalty to differentiate the ethos of these two antagonistic informational classes: "cosmopolitans often value choices over loyalties--even in terms of which relationships deserve their loyalty. Local nativists value loyalties over choices, preferring to preserve distinctions and protect their own group. Cosmopolitans characteristically try to break through barriers and overcome limits; nativists characteristically try to preserve and even erect new barriers, most often through political means" (1996: 24).

Rifkin suggests it is Reich's symbolic analysts or Kanter's cosmopolitans who benefit from this radical upward redistribution of income. Dyson's speed-body of knowledge workers are "a diverse group united by their use of state-of-the-art information technology to identify, process, and solve problems. They are the creators, manipulators, and purveyors of the stream of information that makes up the postindustrial, postservice global economy" (1995: 174). At the same time, nearly one in six, or 37 million Americans, are quite slow-bodies, living in poverty, according to 1992 figures, with 42 percent of them living at the decaying inner atomic core of major atom-state cities (Rifkin, 1995: 177, 180). In many ways, digitalization provides an extremely efficient means of virtualizing "the revolt of the elites" (Lasch, 1994) inasmuch as an emergent bit-based

Gemeinschaft of digital personae and their speed-bodies leads to severe restructuring in the atom-based built environments and social institutions of America's once industrial Gesellschaft.

The infamous "secure community" in exurbias out beyond suburbia with their own private schools, high walls, rent-a-cops, and restrictive covenants will promote more of this hollowing out of public spaces by allowing its residents to interact with one another mostly in VL on the infobahn. These info-islands, in turn, will have highly inegalitarian socioeconomic profiles. One study already has shown 27 percent of homes whose owners completed high school have PCs, while 63 percent of university educated households have them. And, 21 percent of households with incomes under \$30,000 have computers, but 66 percent of those with an income over \$70,000 have them (Tapscott, 1996: 34). At the apex of society, those who are the most likely world class "cosmopolitans," making over \$70,000 a year with a \$180,000 plus net worth and having nearly 7 of 10 homes equipped with computers, are dematerializing the once secure positions at the base of society still held by those who tend to be "localists," who make do on \$30,000 or less a year, have barely 2 in 10 households with computers, and dance around daily to evade the next corporate downsizing being driven by the digitalization of their work.

Just as the automobile reordered the built environment, reconstituted industrial economies, reshaped social mores, and rearranged social classes around motorization, computerization is

causing comparable changes today. Already the nation's industrial infrastructure has shifted. More Americans make semiconductors than build construction equipment, more work in data processing than in petroleum refining, and more make computers than fabricate automobiles (Tapscott, 1996: 9). Old mass production industries are shedding workers, and with this mass of working men and women going by the wayside, the economy is becoming more and more stratified. The "successful fifth," or top 20 percent of households that Reich mainly (1991: 165-168) sees populated by symbolic analysts and Tapscott (1996: 33) finds are worth \$180,000 or more, now control 80 percent of all wealth. And, these unequal rates of wealth and power concentration among net-centric speed-bodies are accelerating.

The celebrants of such virtual offices and factories mostly are to be found among the cosmopolitan cadres of world class corporate management, who are the wrights at work in constructing the datasphere these structures occupy. Thurow's observations on this point, as reported by Tapscott (1996: 6), speak directly to the realities of Gates' friction-free global capitalist marketplace.

Economist Lester Thurow asks his audience in a recent speech to U.S. business leaders, "Who do you think has more high school graduates--the United States or China?" He relies: "If you guess China, you're right--by a couple of hundred million. Now why hire a graduate in the U.S. for \$30,000 per year when I can

get an equivalently educated person in China for \$100 per month?" Many U.S. businesses have already answered with a resounding, "We don't."

Digitalization greatly enhances the bit-borne opportunities of capital to water down the wage, speed up the line, or runaway with the shop, because the virtual workplace can seek, and will find, a mix of the highest skill levels with the lowest wage costs out on the Net.

As a result, Tapscott notes: "Millions of so-called virtual aliens are clicking away on key boards in Shanghai, New Delhi, and Hong Kong--fully networked and employed as members of the U.S. economy. Except that they don't pay U.S. taxes or live in the United States" (1996: 6). The U.S. loses jobs that should/could/would pay \$30,000 per year, but these off-shore virtual shops do not gain their dollar equivalents. This is not a uniquely American problem. Asea Brown Boveri, for example, pays German workers \$30.33 an hour, and Polish workers \$2.58 an hour. Since Polish workers also work 400 hours more a year than German ones, it is no surprise that ABB has added 21,150 positions in former CMEA countries as it has cut 40,000 jobs in North America and Western Europe (Thurow, 1996: 168). Not all of these changes in the atom-world are related to informationalization, but digital means of organizing atom-bound production are greatly accelerating those changes that they do not cause.

Transnational capital's intracorporate economies can

construct intranets or access the Internet to mobilize on-line labor forces from anywhere or everywhere they are reliable links of connectivity. So while the INS closely watches the Mexican border to keep unwanted proletarian atoms out of the U.S.A., cybercoyotes port the bits of hundreds of thousands, if not millions, of on-line laborers into American workplaces everyday.

These virtual aliens, or perhaps "web backs," are contributing to the American gross national product, but they are not occupying U.S. residences, paying U.S. taxes, or spending their wages in U.S. markets. Atoms move their bit-being into the labor market as speed-body scabs, and then their alienated labor travels as the bits of fast capital. Neither they nor their employers, however, entirely forsake atoms for bits. Bits simply become a new means for power/knowledge, nested in North American corporate firms, to exert action at a distance over Third World populations and states.

Nonetheless, the bit-state may coordinate the turnover of largely distributed economies and societies that lap over and under the old world ordering principles of territoriality and nationality. Once proudly nationalist firms no longer tout their "Made in Germany," "Japan," or "the USA" territorial locations; instead, they espouse the virtues of transnationalized virtual corporations, touting the VL-basis of RL-quality for "Made by Mercedes," "Toyota," or "Ford." Bit-states also recognize that the economies, technologies, and societies sustaining their speed-bodies may be located in widely distributed areas, which

forces them to act extra-territorially but intra-telemetrically in defending their interests. The bit-state no longer can count upon national boundaries to define its interests, because all of its telemetrical domains with their web back labor, fast capital, on-line points of presence, high-speed backbones, client servers, network protocols, and time-sharing systems now give it "operating system" interests. These identities/differences, in turn, provide their users access into their cybercivil societies in the datasphere. Defending network integrity and performativity, then, often regardless of territory, emerges as the bit-state's security problematic; otherwise, its cybercivilization crashes and/or fails to continuously up-grade.

When long hard work delivers a satisfying standard of living, ordinary people tolerate its rigors. In the post-1973 era, however, digitalization has brought lower living standards, less economic security, and cultural emptiness as the reserve armies of the atomic proletariat grows by leaps and bounds in its competition with virtual aliens, cyber-illegals, and digital scabs for its daily bread. Hence, the telematic class struggle turns into a specialized type of undomesticated info-warfare between owners and workers, producers and consumers, the informed and uninformed, those with access confirmed and access denied, the few who are net-capable and those many who are net-incapable.

Friction-free capital creates web back labor; bits of economic autonomy generate an autonomous economy of bits; material wealth is atomized in new wealth's codes of digitized materials.

From Blitzkrieg to Bitskrieg

The "cybernation" is a new embitted domain arising out of the numerical control exerted by numeric controllers within existing nation-states; hence, the control of numbers, the source of codes, the grantor of access, or the point of connections now is the fulcrum of cybernational authority in such new social formations. As numerical control mediates humans' control over their collective and individual digital being, one can anticipate that the ideological bias, class prerogatives, or group interests of the bit-controlling classes in each cybernation also will be much more difficult to discern as well as resist. Conflict will center upon controlling bits, and warfare then will evolve into many disparate forms of "bitskrieg."

Indeed, digital beings now fear not atom-state forms of blitzkrieg, but telematic forms of bitskrieg in the many inchoate forms of info-war of all against all. They recognize how totally their on-line lives can be subjected to many forms of on-line injury, debilitation or death. An informational subjectivity can be "killed," or "crippled," or "injured" by destroying, modifying or stealing all or part of the bits carrying its informational modes of existence. Security is a major worry out on the Net, because info-war is, and can be, waged by all against all. Individuals, corporations, and states all face the threat of info-attack, and info-defenses need to be part of any digital being's operational routines. "Access to" hardened heavily encrypted sites, like cybernations, and then "access in" them

once anyone gets there again will mark inequalities in digital domains. Little people, or local nativists, will be readily attacked and quickly damaged, because so much of their cybernetic subjectivity will remain easily accessible, modifiable, destructible, nonredundant. Another mark of world class cosmopolitan status may well be having better, more flexible security as a virtual (and material) being.

As long as digital information has value, and to the extent that anyone can tap this value anytime from anywhere, intruders or abusers will hack into these network spaces in search of financial information, telephone numbers, psychodemographic data, industrial secrets, or infrastructure commands that might be leveraged to extract wealth or power. Not only will nation-states attempt to turn these bit-reserves into strategic assets, but independent firms and experts also will aspire to capture them for their own tactical advantages. So individuals, as fragments of net-borne performativity, must prepare for info-war. Discursive dromocracy leads to insecurity, and individuals will find their privacy, wealth, and behavior subject to tremendous surveillance, if not outright domination, by those fellow dromocrats who are continuously trying to just take knowledge in order to contribute to it.

The network of networks--intra, extra, and inter--rapidly is acquiring the generality, density, and complexity of many existing material built environments. Its universality, in turn, now provides a standard global infrastructure for those locked

into receiving and sending information across its relays and routers. These dispositions, however, also expose everyone who occupies these spaces to new insecurities. As Virilio observes, "from now on, military assault is shapeless in time and space, absolutely vaporous," as terrorist disruptions, infowar attacks, ecological threats, and electronic agitprop remodulate the security problematique from one of comparatively slow material onslaughts through space to that plus new threats of fast attack bit war, image war, or viral war over networks, leaving it where "excessively mediatized danger has become totalitarian" (1990: 72, 73). For Virilio, these postmodern changes simply continue modernity's cancellation of each citizen's right to armed defense as well as strong forms of legal and political identity. The migration from material ecologies to virtual ecologies, even only partially, "is tantamount to putting all of civilian society under a regime of military security," and, from out of this permanently securitized condition, a new discourse and discipline surfaces out of global cyberspace and media markets: "a technological supra-nationality, the final stage of delocalization, and thus of servitude" (Virilio, 1990: 73, 72).

Up to this point, modernization has shaped "the conduct of conduct" expected from its biopolitics around the obligatory right to live, especially to live out life in keeping with ever higher standards of living expected from the mass consuming publics that mass producing industries presume. Such material logics now are complemented by cybermodernization credos, whose

cyberbiotic expectations of well conducted conduct must be matched to the functionalities of global networks, transnational telepresences, and intercultural infostructures. Increasingly, the securitization system of these techno-logistical supra-nationalisms exalts "the duty to die, to die on command, at the signal" as the bit-state perverts the atom-state's "right to live into a right to die" (Virilio, 1990: 78-79).

On one level, these rights are material: flying by wire, organizing by wire, communicating by wire, fighting by wire all connect the physical safety of one's body to the integrity and accuracy of data streams. To disrupt the data is to destroy the body, leaving everyone aware of how cyberwrights create new physiorights. On another level, however, the dark worlds of computer games easily illustrate how the game of computer world-creation is one of fast, violent, and permanent destruction in a continuously evolving bitskrieg. The obliteration of bits is standard operating procedure in cyberspatialized play and work. Fast turnover of technologies, operating systems, and software always obliterating existing interfaces, forcing one to upgrade, reboot, or migrate. To accept informationalization is to accept perpetually being "in-formation" as nothing is stable, fixed, or certain. Mutually assured destruction is the entire point of new generations of hard/soft/group/net wares all arising out of the upgrades of old configurations. And, cyberpolitics is often nothing more than this bitskrieg of speed-bodies carried on by other means.

The Politics of Netizenship

Against the daunting realities of digital inequality in bit-states, Poster sees netizens, as they all inhabit the infographies of their many little bit-worlds, "coming to terms with the process of identity constitution and doing so in ways that struggle against restrictions of systematic inequalities, hierarchies and asymmetries" (1996: 200). How this hope can be realized from technologies whose fundamental structures and first principles are asymmetry, hierarchy, inequality, and supersystematization, however, is quite unclear. Internet technocultures are solid state sociologies fixed on-line in switches, data, and circuits as distributed arrays of "Computers Everywhere" plus concentrated overlays of "the Global Network" (Schwartz, 1994: 50-54). They do not need off-line essentialist origin myths, because their on-line foundational reality is now our cyber-essence, on-line origin, and machinic myth (Slouka, 1995).

Again speaking as an infographer of cybernetic self-fulfillment, Poster asks the network architects of on-line services to realize their self-fulfillment prophecies by exalting new client-server applications, like "virtual reality," as millenarian cultural innovations. Because "the information superhighway and virtual reality are communications media that enrich existing forms of consumer culture," the cultures of existing enrichment should continue to form consumers through communications media, like "virtual reality devices" as

compelling as "the dream videos" of Wim Wender's dystopian film, Until the End of the World (1991), which "are irresistible compared to everyday reality, a kind of hyper-reality" (Poster, 1996: 190, 197). These moves may, as Hayles asserts, "expose the presuppositions underlying the social formations of late capitalism," but they seem much more likely "to open new fields of play where the dynamics have not yet rigidified and new kinds of moves are possible" (1993: 175). Fair enough, but fluid moves by who and against whom in plays of what on whose fields?

These irresistible bits of hyperreality probably will be bought and sold through Poster's "virtual reality machines" by whose emulated effects human participants may "enter imagined worlds with convincing verisimilitude, releasing immense potentials for fantasy, self-discovery and self-construction" (1996: 197). Such infographic prophecies of bit-borne self-fulfillment, however, mask the bigger questions lurking behind such convincing verisimilitude. Amidst these virtual realities, now settled with their own "cities of bits" (Mitchell, 1995) or "cybercities" (Boyer, 1996), whose imagined worlds, what fantasies, what self will be discovered/constructed, and where will potential be released?

Poster's observations may indicate that too many people still trust the information revolutionists, or the computer makers, teleco providers, software writers, and network servers, to produce a better world out of the social movements of technology and organization behind their info-insurrections.

Yet, few look beyond the intended consequences of the digerati's primary actions, namely, how promoting "the information society" to sell personal computers, digital telephony, packaged software or network time is creating cybernations with these "cities of bits" on their "virtual geographies." Once these technologies are adopted, their revolutionary effects can change individuals and institutions in unanticipated ways as people begin behaving differently due to these informational technics.

The cyberporn question may represent one of the atom-state's most focused efforts to route their embodied directives of nationality, territoriality or sovereignty into cyberspace. The anarchy of the Internet has fostered development by many communities of pornographic commerce, because its users have articulated on-line community standards of tolerance. However, the accessibility of cyberporn anywhere and everywhere its images can be pulled off the network bring community standards of pornographic acceptability into a severe crisis. Cyberporn as atoms--on the printed page or in tawdry sex clubs--moves slowly, and it has colors, sizes, weights that can be regulated with those communities where it shows its color, reveals its size, and discloses its weight. The meanings of 1/0 cyberporn bits, as Negroponte argues, are "a separate matter." They move fast, and often may differ little from well-protected free speech uses of classical art nudes, medical textbooks, or great literary writings. Nearly 50 percent of them are posted in other political jurisdictions, the communities and standards by which

one might judge prurience are far too diverse, and government responses mostly are attempted exercises of censorship that can be technically, geographically or legally counteracted. So the unstoppable and irrevocable change from atoms to bits is imploding the atom-state's ability to exercise jurisdictional normativity with some modicum of legitimacy within some discretely bounded territory. In fact, the repudiation of the Communications Decency Act in the United States with every hit on an illicit cyberpornographic site represents an act of informatic insurrection by the netizens of Cyberia against the United States of America.

As John Perry Barlow asserts, "cyberspace is naturally anti-sovereign," and loosely-linked netizen leagues, like those allegedly represented by the Electronic Frontier Foundation, must defend civil liberties in cyberspace against "hegemonic incursions by various power sources from the terrestrial world" (Brockman, 1996: 13). Here, Barlow and others see cyberspace as a digital domain whose populations and frontiers need to be defended, planned, or expanded by their inhabitants. These netizens, in turn, do not necessarily share the same "imagined community" with their atomic neighbors. Instead, they populate new cybernations as speed-bodies whose internetworking populations are strings of bits whose liberties, meanings, and loyalties are "a separate matter" than those shared as civil matters in the physical world of the atom-state. In turn, the diverse and divided number of atom-states virtually guarantees

that no single sovereign power ever will be able to enforce its local, regional, national, or supranational community standards upon its citizens. As David Bunnell notes, "if you want to sell dirty pictures on the Internet to the U.S. market in this post-Communications Decency Act era, all you have to do is set up your file server outside the border....Although it was created by the government, the technology of the Internet is now beyond the control of the government. Hackers will always figure a way to get around laws that attempt to censor the Internet" (Brockman, 1996: 36). Sovereignty, then, can only be realized temporarily or tenuously as either power effects on intranets, where state controls can be imposed on all coded traffic, or as coercive controls over access into or out of any nation's Internet switches, where all abnormal messages can be blocked, cached, or eradicated, if they can be detected.

The cyberporn issue in the United States, then, can be seen as simply a cat's paw for insecure politicians, who are anxiously anticipating their loss of sovereign authority, to threaten otherwise secure populations with new insecurities.

In Germany, they want to control cyberspace to keep the skinheads from using it. In Iran, they want to control it to keep people from having infidel conversations or having inappropriate contact between the sexes. Every culture is going to try to use its primary bogeymen to give it an excuse to go into cyberspace and ride roughshod over it. The pornography issue in the United States is nothing but a stalking horse for control (Brockman, 1996: 14).

Yet, these RL moves against VL liberties are doomed to fail, according to the digerati. They are actions taken in the off-

line world of atoms to regulate bit behaviors in the on-line world. VL will continually outpace RL, exerting the heteronomous anarchy of the Net against the monocratic autonomy of the atom-state.

At some point, as Dyson desires, virtual reality for an individual, a work group, and perhaps even a society will become as preoccupying as interactions in material reality. It is merely a question of how much time one spends everyday in the virtualities of cyberspace versus the realities of material space. Once most trade, work, and education are conducted over computer networks, this will become even more true, if only because there are only so many hours in the day. When individual and group identities are pulled together from multimedia performances, network activities, and software operations, our cultural meanings mostly also will develop at networked sites between multimediated telepresences rather than out on the street in face-to-face dealings (Jones, 1995).

Virtualizing our identities digitally in streams of electronic writing on networked computers allows computer users to represent themselves realistically or surrealistically, honestly or deceptively, openly or furtively. As digital beings interacting with each other in on-line information services, dromocrats will occupy private and public hyperreal estate, and their actions there under either true or assumed identities can be purely fantastic play or flat-out criminal activity. Is being on-line, then, as a digital being always an authentic moral

activity in terms of personal responsibility? Or can it become a lark inside an inauthentic amoral playspace where anything goes?

But, if anything does go, from pornography, libel, sedition, heresy or fraud, then what laws must be upheld, by whom, and how?

Are hyperreal estate web sites like real estate property sites in the material world? Do their owners and operators have similar property rights, trespass protection, security expectations, economic freedom? In turn, can communities of digital beings in dromocratic cybernations expect some measure of cybersovereignty to hold, permitting them to direct network contractors to meet certain aesthetic requirements, extend basic access rights, respect personal privacy, or pay tax rates to cultivate these shared hyperreal domains?

Citizenship in the info-city, as the netizens of a bit-state suggest, is truly a challenging question. Existing mostly in cyberspace as a dedicated network system, the bit-state boundaries of an info-city are problematic. Participation in public life traditionally required one to reside within a geographically-bounded space to a member of one body politic. Residence represented commitment to or identification with the city. With mobile computer communications, any cybercitizen in, for example, Akron, Ohio could as easily port into the info-city "there" from Auckland, Alma Ata, Adelaide, Addis Ababba, or Athens as from any site actually in the material neighborhoods of Akron. Mobile netizenship can follow mobile offices out onto the Net. We already have virtual aliens and cyber-illegals, working

in American cyberspaces served by computer hosts in Los Angeles as their cyberclients port in from work stations in Bombay or Manila. Thorny new issues arise in cyberspace as questions of infocivic territory: where are city limits, who can enter or leave, how is residence, work, or participation to be permitted, what links exist to the material city, what is a citizen? In many ways, info-cities may have more in common with each other, as "world class" sites, than they will with their "localist" host nations as telemarketing/telelabor/telebanking link InfoAkron to InfoTokyo, InfoAtlanta, InfoFrankfurt, or InfoSydney instead of real Toledo or material Dayton.

At some point quite soon, the RL proliferation of VL cyberspaces, coupled with the displacement of so many RL command-and-control functions into virtual communication circuits as well as the replacement of broadcast media with more and more netcast media, may bring RL political activities to a fateful exit from their still mostly nineteenth century arcological practices. As Virilio notes, European revolutionists claimed in the nineteenth century "that to control the streets is to control the State" (1990: 96), seizing power in atom-war meant dominating the lines of transport and communication through arcological space. Seizing the Bastille, tearing up the boulevards, storming the Winter Palace, taking over the trains, even occupying Tienamen Square. All of these actions are rational strategies for prevailing against territorially arrayed arcological powers. Telemetrically arrayed cyberstructures, however, are far more

diffuse and variegated, which makes them prime assault targets for info-war.

Warfare, as Clausewitz observes, is the continuation of politics by other means, as fighting centers upon compelling others to accept one's will against or over theirs. Cities of bits represent instances of cyberurbanization, but also, as Virilio would assert, of info-warfare, because urbanists are persons who build cities in order to defend them (1983: 86). Infobahns, databanks, cybercities, teleports, and netizen movements are hybrid eruptions of atom/bit (con)fusions, spewing out new power effects and legitimacy questions. In one register, cities of bits might remain nothing but teleports, opening and closing their binary logic gates for or against passworthy or unpassworthy traffic. Flexible flows of functionalities would let polynomial communities cross all platforms and share all spaces as any cyberpolis truly realizes the potentialities of itself as the wired cosmopolis. In another register, however, cybercities could mimic atomic matters and array themselves into jumbled conurbanized aggregations of internets and extranets where their networks would digitally emulate the atomic effects of earthworks. Linguistics, technics, and electronics already exert some of these influences now in cyberspace by building mutual exclusion into operating systems along with parallel processing potentials. Standardized spaces of systemization stipulate the necessity of monological solutions, dedicated servers, closed architectures, or encrypted interactions here,

erecting many minipolitan domains where their webmeisters and/or netizens hope to limit the volume of infobahn traffic, contain the scope of databanking, or focus teleport links. Nevertheless, readers in both registers must recognize how cyberurbanity is simultaneously an act of cyberpoliticization, which must compound at the same time into close considerations of a strategy for coping with bitskrieg strikes launched against it from any n-dimensional direction.

A Conclusion

Conventional notions of Realpolitik are plausible inasmuch as the subjects of some realist regime's action are corporeal presences captured as slow-bodies by the closed architectures of states, which are, in turn, a discretely bounded containers of territoriality, branded with the identities of nationality, and ruled through the discursive directives of sovereignty. The space of atom-states is that three-dimensional geometric gridworks, their time is measured by clocks and calendars set to the hours of the sovereign's jurisdiction, and action follows the ruliness of a centrally ap-pointed and continuously in-stated authority. Embodiment sustains and limits politics; so when embittedness invades embodiedness, the terms of order also shift.

Digital beings are often telepresences, code formations, or data effects. Their speed-bodies inhabit telemetrical infostructures as clients of servers, time sharers in hypertextual domains, or software applicators on common hardware platforms. Spaces are more n-dimensional, time is machine-driven in terms of daily

process and generational duration, and action is often ad hoc patches placed between nonstandardized operating systems. Therefore, to the degree that political agency and structure are expressed in the bit-worlds of digital beings, the old rules of politics for atom-worlds and corporeal beings will be torn and tested.

The art modem aesthetics of the digerati celebrate the digital nation in decisively elitist terms. As Katz claims, the Digital Nation is quite special:

Its citizens are young, educated, affluent. They inhabit wired institutions and industries-- universities, computer and telecom companies, Wall Street and financial outfits, the media....They are predominately male, although female citizens are joining in enormous--and increasingly equal--numbers. The members of the Digital Nation are not representative of the population as a whole: they are richer, better educated, and disproportionately white. They have disposable income and available time. Their educations are often unconventional and continuous, and they have almost unhindered access to much of the world's information (1997: 52).

Ignoring the on-line cybercultures of neo-Nazism and millenarian fundamentalism, Katz also believes that Digital Nation is intrinsically libertarian and democratic. At the same time, the Digital Nation is quite conservative in its economics, because it embraces entrepreneurialism. free markets, and personal responsibility (Katz, 1997: 184).

At the end of the day, the digerati see their Digital Nation as anti-statist and post-governmental. Their info-insurrection is "founded on the ethos of individuality, not leadership. Information flows laterally, or from many to many--a structure

that works against the creation of leaders" (Katz, 1997: 184). All existing liberal capitalist democracies are unfriendly to netizens and their worldwidewebs of electro-equality, on-line liberty, and friction-free fraternity. Indeed, the atom-states are, at best, televisual gulags in which "voters are now more concerned with imaginary threats than real ones," because television gives them all "a processed world, both eviscerated of context and artificially fortified toward no greater purpose than entrancing the audience" (Barlow, 1996: 195). Thus, the info-insurrection attacks all nation-states, including the U.S.A., because popular democracy in the Television Age is "Government by Hallucinating Mob.... The U.S. government has broken, the victim of television and of connection crash in general," as electronic televisual overload now paralyzes the inner life of republics (Barlow, 1996: 195).

The operational capabilities of the atom-state are embedded within a national system of industrial systems, which legitimates itself by producing, distributing, and consuming material wealth.

Ohmae argues informational flows, technologies and values essentially eviscerate these nation-states as embitted investment, industry, and individuals now gravitate to those global markets where they can obtain both products and prices for those products that are the best-in-the world. For Ohmae, "the nation-state is increasingly a nostalgic fiction" as well as a "remarkably inefficient engine of wealth distribution" (1995: 12). Digitalization becomes an episode of global equalization

inasmuch as it brings forth "a world whose people, no matter how far-flung geographically or disparate culturally, are all linked to much the same sources of global information...the basic fact of linkage to global flows of information is a--perhaps, the--central, distinguishing fact of our moment in history. Whatever the civilization to which a particular group of people belongs, they now get to hear about the way other groups of people live, the kinds of products they buy, the changing focus of their tastes and preferences as consumers, and the styles of life they aspire to lead" (Ohmae, 1995: 15).

Seconding Kanter's observations about the new class divisions arching across a rapidly informationalizing world-system, Ohmae maintains that the nation-state mostly fails as a redistributive device as well as a guardian of sovereignty. Captured by the "resource illusion" (insulating territory from world trade to conserve natural resources) or "national interests" (labelling this land, factory, market as "ours," not "theirs"), the nation-state finally reveals itself as a protection racket, mostly to protect the traffic in atoms held by the biggest, most active domestic racketeers. In the borderlessness of digitalized information, "the traditional national interest--which has become little more than a cloak of subsidy and protection--has no meaningful place. It has turned into a flag of convenience for those who, having been left behind, want not so much a chance to move forward as to hold others back as well" (Ohmae, 1995: 64). Nationalism, then, is

essentially another manifestation of atom-state localism/nativism/protectionism poised to prevent cosmopolitans from building fast informationalized capitalism on a global scale. This filtering/braking/retaining function of nation-states is significant on the digital planet only to the degree that national power distorts or enables the efficient circulation of information. As Ohmae asserts, "economic borders have meaning, if at all, not as dividing lines between civilizations or nation states, but as contours of information flow" (1995: 25). Most importantly, as Gates argues, the digitalization of everyday life within these global flows "promises to make nations more alike and reduce the importance of national boundaries" (Gates, 1995: 262).

The qualities of nationality, sovereignty, and territoriality are attenuated in the Internet's bit-worlds, because the Net was created initially to operate after the erasure of nations, sovereigns, and territories by superpower thermonuclear exchanges, which were denominated in the deadly codes of mutually assured destruction. The rhizomatic intelligence of IP/TCP packets was to patch together from any survival point all surviving points in a mutually assured (re)construction of new protocols for action. Strangely enough, World War III did not happen; but, in the aftermath of its noneventuation, the network of networks is atomizing the atomic assumptions of embodied nationality, strongly centered sovereigns, and fixed territoriality in contemporary world

politics with new bit bases for identity, authority, and community.

As Haraway notes with regard to the biologics of the present, cybernetics are becoming an information system and economic system of a very specific sort. The rhetorics of digitalization reprogram metaphor and matter in all of our technoscience. So we must recognize some new realities:

We act and are inside this world, not some other. We are subject to, subjects in, and accountable for this world. The collapse of metaphor and materiality is a question not of ideology but of modes of practice among humans and nonhumans that configure the world--materially and semiotically--in terms of some objects and boundaries and not others. The world might be different but it is not (1997: 97).

The road ahead, then, is a digital one where humans and nonhumans will reconfigure the world materially and semiotically around the embittedness of digitality.

Atom-states may capture the digital revolution within their ambit, and much of the Internet still bears the marks of its Cold War origins from the conflict of atomic wars/politics/states. As Strathern suggests, however, the ARPAnet origins of the Internet now represent "a world made to Euro-American specifications" that expects, in turn, all interactions within it from this time onward to "already be connected up in determined ways" (1992: 17). And, as the info-insurrectionalism of Wired netizens also suggests, "the digital nation" is testing the VL potentials of the bit-state against the RL of the atom-state. Time will tell how extensively bits will be free to be bits or how thoroughly

atoms simply will be subjugated to new forms of domination and direction by bits whose origins, interests, and goals merely rearticulate the old world order of inequality and unfreedom in the New World Order of cybernations.

References

- Anderson, Benedict. 1991. Imagined Communities: Reflections on the Origin and Spread of Nationalism, second edition. London: Verso.
- Barlow, John Perry. 1996. "The Netizen: The Powers That Were." Wired, 4, no. 9 (September), 53-56, 195, 197, 199.
- Brockman, John. 1996. Digerati: Encounters with the Cyber Elite. San Francisco: Hardwired.
- Boyer, M. Christine. 1996. Cybercities: Visual Perception in the Age of Electronic Communication. New York: Princeton Architectural Press.
- Deleuze, Gilles. 1992. "Postscript on Societies of Control," October, 59: 3-7.
- Edwards, Paul N. 1996. The Closed World: Computers and the Politics of Discourse in Cold War America. Cambridge, MA: MIT Press.
- Foucault, Michel. 1991. The Foucault Effect: Studies in Governmentality, ed. Chicago: University of Chicago Press.
- Gates, Bill with Nathan Myhrhold and Peter Rinearson. The Road

- Ahead. New York: Viking.
- Haraway, Donna. 1997. Modest Witness @ Second Millennium.
Female Man© Meets OncoMouse™. New York: Routledge.
- Hayles, N. Katherine. 1993. "The Seductions of Cyberspace,"
Rethinking Technologies, ed. Varena Conley. Minneapolis:
University of Minnesota Press.
- Jameson, Fredric. 1991. Postmodernism, or the Cultural Logic of
Late Capitalism. Durham: Duke University Press.
- Jones, S. G. (ed.) 1995. Cybersociety: Computer-Mediated
Communication and Community. London: Sage.
- Kanter, Rosabeth Moss. 1995. World Class: Thriving Locally in
the Global Economy. New York: Simon & Schuster.
- Katz, Jon. 1997. "The Netizen: Birth of a Digital Nation."
Wired, 5, no. 4 (April), 49-52, 184, 186, 190-191.
- Kelly, K. 1994. Out of Control: The Rise of Neo-Biological
Civilization. Reading, MA: Addison-Wesley.
- Lasch, Christopher. 1994. "The Revolt of the Elites: Have They

- Cancelled Their Allegiance to America?" Harper's, 289
(November), 46-48.
- Levy, S. 1992. Artificial Life. New York: Pantheon.
- Lucky, Robert W. 1989. Silicon Dreams: Information, Man and Machine. New York: St. Martin's Press.
- Lukács, Georg. 1971. History and Class Consciousness.
Cambridge, MA: MIT Press.
- Luke, T. W. 1996. "Liberal Society and Cyborg Subjectivity:
The Politics of Environments, Bodies, and Nature,"
Alternatives, 21:1-30
- .Luke, T. W. 1993. "Discourses of Disintegration, Texts of
Transformation: Re-Reading Realism," Alternatives, 18:
229-258.
- Luke, T. W. 1989. Screens of Power: Ideology, Domination, and
Resistance in Informational Society. Urbana, University of
Illinois Press.
- Lyotard, J. F. 1984. The Postmodern Condition. Minneapolis:
University of Minnesota Press.

Mitchell, William J. 1995. City of Bits: Space, Place and the Infobahn. Cambridge, MA: MIT Press.

Negroponte, Nicholas. 1995. Being Digital. New York: Knopf.

Ó Tuathail, Gearóid. 1996. Critical Geopolitics. Minneapolis: University of Minnesota Press.

Reich, Robert. 1991. The Work of Nations: Preparing Ourselves for 21st Century Capitalism. New York: Knopf.

Rheingold, Howard. 1993. The Virtual Community: Homesteading on the Electronic Frontier. Reading, MA: Addison-Wesley.

Rifkin, Jeremy. 1995. The End of Work: The Decline of the Global Labor Force and the Dawn of the Post-Market Era. New York: G. P. Putnam & Sons.

Rushkoff, Douglas. 1994. Cyberia: Life in the Trenches of Hyperspace. San Francisco: Harper.

Schwartz, Winn. 1994. Information Warfare: Chaos on the Information Superhighway. New York: Thunder Mouth Press.

Slouka, Marc. 1995. War of the Worlds: Cyberspace and the High-Tech Assault on Reality. New York: Basic.

Smith, Neil. 1984. Uneven Development. Oxford: Blackwell.

Soja, E. 1989. Postmodern Geographies. London: Verso.

Stock, G. 1993. Metaman: The Merging of Humans and Machines into a Global Superorganism. New York: Simon & Schuster.

Strange, Susan. 1996. The Retreat of the State: The Diffusion of Power in the World Economy. Cambridge: Cambridge University Press.

Strathern, Marilyn. 1992. Reproducing the Future: Anthropology, Kinship and the New Reproductive Technologies. New York: Routledge.

Tapscott, Don. 1996. The Digital Economy: Promise and Peril in the Age of Networked Intelligence. New York: McGraw Hill.

Tapscott, Don. 1995. The Digital Economy: Promise and Peril in the Age of Networked Intelligence. New York: McGraw Hill.

Thurow, Lester. 1996. The Future of Capitalism. New York: William Morrow and Company.

Vattimo, G. 1992. The Transparent Society. Baltimore: The

John Hopkins University Press.

Virilio, Paul. 1995. The Art of the Motor. Minneapolis:
University of Minnesota Press.

Virilio, Paul. 1994. The Vision Machine. Bloomington: Indiana
University Press.

Virilio, Paul. 1991. The Lost Dimension. New York:
Semiotext(e).

Virilio, Paul. 1990. Popular Defense & Ecological Struggles.
New York: Semiotext(e).

Virilio, Paul and Sylvere Lotringer. 1983. Pure War. New York:
Semiotext(e).

Wresch, William. 1996. Disconnected: Haves and Have-Nots in
the Information Age. New Brunswick: Rutgers University
Press.

Zuboff, Shoshana. 1988. The Age of the Smart Machine. New
York: Basic Books.