

**Placing Ecocritique in Context:  
Technology, Democracy and Capitalism as Environment**

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Many of the most important political debates in this generation center upon working through the practical implications in a handful of discursive dualisms: Nature/Society, Ecology/Economy, Environment/Organism. With each couplet, on-going arguments contest the terms themselves: where one stops and the other starts, how the first limits the second, why each cannot exist without the other, what directives in the first guide the second, when the latter endangers the former are all questions sustaining innumerable intellectual exchanges. Because very little here is obvious as such, these terms are invested with new significance by every individual or group that deploys them as meaningful constructs in environmental analysis. The result of so much pushing and pulling against the values and practices implied by these discursive oppositions is a vast body of ecocriticism. Responding to the implications of these evergreen dualisms, in turn, produces many variants of "ecocritique," which articulate their visions of right conduct for individuals, how communities might safeguard their environments or why progress never comes to pass.

In this context, many ecocritiques remain stuck in modernist ruts, assuming an operational terrain in which humans intervene in their natural environments in ways—either intended or unanticipated—that turn out to be disastrous. Thus, technology, democracy, and capitalism are cast as anthropogenic forces that impinge, with deleterious effects, on the Earth's theogenic, or,

at least, autogenic environments. Whether they are nature laments or anti-industrial polemics, ecocritiques rarely reposition their analyses outside of modernity's constantly changing contexts. Why not reverse some of these rhetorical relations? Perhaps technology, democracy, and capitalism are now coevolving into forces that have many effects, some positive and some negative, including the fabrication of enduring anthropogenic environments. Instead of being seen as factors intruding upon the environment, their joint interaction effects can be seen as an environment in itself. If technology, democracy, and capitalism are recast as part and parcel of our environment, then their influence could be much greater and far different than what is attributed to them by other styles of ecocritique.

Recognizing how the ensemble of technology/democracy/capitalism now exerts environing effects on a global scale and at a local level almost everywhere forces one to concede how thoroughly these social formations have become environmental in dimension and duration. Industrial production and by-production, popular democratization and structural undemocratization, market success and market failure all coexist as dense networks of interaction and fixed grids of inaction. Their net effects acquire a naturalized momentum and scope, turning them into an environment. As Beck (1992) notes, modernization must become reflexive at this juncture: a reality

that has been reaffirmed implicitly by many environmental movements of the past generation.

The fusion of conflict studies, environmental policy, and cultural change in some quarters of the academy implicitly endorses Beck's vision of "the risk society." That is, "the social production of wealth is systematically accompanied by the social production of risks," and, as a result, "the problems and conflicts relating to distribution in a society of scarcity overlap with the problems and conflicts that arise from the production, definition, and distribution of techno-scientifically produced risks" (Beck, 1992: 19). Modernization is forcing many agencies and structures, to become reflexive, because it is making, and it already has remade, technology/democracy/capitalism into an environment. While the classical narratives of rationalization underpinning the modernization project presume greater command, control, communication, and intelligence will come from applying more rationality to life, the experiences of living amidst past, on-going, and planned exercises of rationalization actually find us living with many consequences beyond anyone's command, control, communication or intelligence. In other words, the growing calculability of instrumental rationality also brings along with it new measures of incalculability -- unintended and unanticipated -- out of instrumental irrationality.

To develop a vision of technology, democracy, and capitalism

as environment, this analysis will unfold in four parts. First, it develops a fresh appraisal of what "the environment" might be, and then positions this new understanding in the 1990s -- a time, for many, at "the end" of nature, history, and otherness. Second, it indicates how thinking about the uneven globalization of technoscience in subpolitics may provide a better perspective on the environmental crisis than worrying about the incomplete globalization of civic activism in the polity endorsed by others. Third, it illustrates how the toxic waste problem can be seen as constructing a subpolis on a worldwide scale. And, finally, it indicates how the ensemble of technology/democracy/capitalism as environment promotes more ungovernable outcomes in the governmentality accords behind our on-going modernization of the Earth.

#### **I. Endings and the Environment**

These questions assume considerable importance in the 1990s, because so much of the context addressed by previous ecocritiques has changed during the past ten, thirty or sixty years. So much, in fact, that neither John Muir's preservationism nor Gifford Pinchot's conservationism do real justice to the pressing ecological problems of the present. After the Industrial Revolution, nowhere in the world holds out against machines: technology is everywhere. After the two world wars, few places around the world hold on to traditional formulas of authority: democracy is spreading everywhere. After the Cold War, nowhere

in the world seriously holds forth as a real alternative to the market: capitalism is everywhere. Any new ecocritique should respond to this new context, because these forces are, strangely enough, key constituent components of the contemporary environment. But what does this mean?

While the "environment," as a conceptual term, is used to refer to human relationships to their natural surroundings, it rarely captures the full quality or entire quantity of all human beings' interrelations with the terrains, waters, climates, soils, architectures, technologies, societies, economies, cultures, or states surrounding them. In its most expansive applications, the environment has become the name for a strong but sloppy force: it can be almost anything out there, everything around us, something affecting us, a few things within us, but also a thing upon which we act. What exactly, then, is "the environment"?

Perhaps the early origins of "the environment" as a term, or its historical emergence as concept/word/idea, might prove suggestive here. This archeological move does not uncover a stable nominal essence; it simply reilluminates semiotic qualities carried in the expression today that, first, accompany the term from its earliest origins, and, second, throw light upon its discursive applications. In this original sense, which is brought into English from Old French, an environment is the result of an action from, or the state of being produced by a

verb: "to environ." And, environing as a verb is, in fact, a type of military, policing or strategic action. To environ is to encircle, encompass, envelop or enclose. It is the physical activity of surrounding, circumscribing, or ringing around something. Its use even suggests stationing guards around, thronging with hostile intent, or standing watch over some person or place. To environ a site or a subject is to beset, beleague or besiege that place or person.

An environment, as either the means of such activity or the product of these actions, now might be read in a more suggestive manner, especially in light of how most environmental knowledge is produced and consumed. It can be the encirclement, a circumscription, or the beleaguerment of places and persons in a strategic disciplinary policing of space. An environmental policy, in turn, is already a disciplining move, aimed at (re)constructing some expanse of space--a locale, a biome, a planet as biospheric space or some city, any region, the global economy as technospheric territory--within a discursive envelope of policing regulation. Within such enclosures, many flavors of environmental expertise can arm environmental activists, policy-makers or regulators, who stand watch in these surroundings, surveying from their bureaucratic battlements those zones of encircled space that include or exclude forces, agents, and ideas.

Even if we understand environment in these terms, there are

many different ways to track down the various interrelationships of all living creatures to all of their natural and artificial environments. Earth, the solar system, this galaxy antedate humanity by billions of years, and nothing that humanity has done up to this point has altered significantly many basic astrophysical, geological, or meteorological processes. Chaos theory, of course, says everything can be changed by anything, but right now we do not have the abilities to make many reliable forecasts. Nonetheless, we could heed the caution signs of chaotic linkages, and recognize how our industrial/social/cultural metabolisms as collectives of causation are beginning to leave more enduring traces upon the planet, particularly in the oceans and atmosphere.

First formulated in 1866 by Ernst Haeckel, the term "ecology" pertains to "the science of the relations of living organisms to the external world, their habitat, customs, energies, parasites, etc." (cited in Worster, 1979: 192). Allegedly, ecology can be operationalized as "a subversive science" (Shepard and McKinley, 1969: 9), but many others see it being misused as the subversion of science (Bramwell, 1994; Lewis, 1992; Ray, 1990; Rubin, 1994). In both forms, however, the scientists acting in the name of this science rarely examine the totality of all relations between living organisms and the external world: in part, this is because there is no consensus about where, why, and how the external world can be redacted from

living organisms; and, in part, it is due to a privileging of operational research programs that assume a biocentric understanding of organisms or a geocentric reading of the external world that deflects many sciences away from more systemic artificial aspects of the external world.

Accepting the implications of such a definition, however, cannot be biased toward one side of the spectrum. That is, too many analyses of ecology read their scientific brief in the light cast by green bands of the color spectrum, concentrating biomorphically upon nonhuman plant and animal life. Few, if any, follow the totality of all relationships between living organisms and their environments down other wavelengths into the grey scales of illumination made possible by more machinomorphic rereadings of all human and nonhuman life. To become a truly subversive science, ecology must re-examine the full totality of all relations between living organisms -- human and nonhuman -- and their external world -- artificial and natural -- in assaying the full compass of their habitats, customs, and energies. If the phenomenological invitation issued by Husserl, Heidegger, and Merleau-Ponty to return "to things themselves" is to be honored fully, then things which are machines, artifacts, and implements, and not just snail darters, atmospheric chemistry, and forest succession, also must be studied as closely or lovingly as biota and biomes. With those adjustments in place, it soon becomes clear how fully the ensemble of technology/democracy/capitalism

is an environing engine. The Earth as a site and all life forms as a subject are enveloped by technology, surrounded by democracy, and besieged by capitalism, consolidating these forces into environment.

Anticipating perhaps the dawning of the millennium in Y2K, some also ask if this moment in history is a series of endings: The end of Nature. The end of History. The end of Otherness. Plainly, there are bursts of hyperpole in some of these discussions; but, at the same time, this series of endings can be connected with the profusions of technology, democracy, and capitalism during the 1990s. And, all of these recognitions underscore how far the modernization project has come from the beginnings of the Industrial Revolution when science and industry began conquering material scarcity and necessity through the application of instrumental reason.

#### A. The End of Nature

Technology, as McKibben asserts, appears to be changing some basic geophysical and biochemical characteristics of the Earth's atmosphere and biomass. Ozone depletion, greenhouse gases, industrial pollution, and toxic wastes seem so pervasive and embedded within the planet's ecologies that, as McKibben asserts, "we are at the end of Nature" (1989: 8). The end of Nature does not mean the end of the world, but it will mean concrete changes in so many environments all around the planet that "a certain set of human ideas about the world and our place in it....until,

finally, our sense of nature as eternal and separate is washed away" (McKibben, 1989: 8). As technoscience turns what was nonhuman Nature into something contingent and coincident with human society, where perhaps once "bloomed a sweet and wild garden," people with technology now have built "a greenhouse, a human creation" (McKibben, 1989: 91). The forms of life -- both human and nonhuman -- are becoming invested entirely within many vast, complicated technological systems, which directly redefine the conditions of survival after the end of Nature.

Like "the West" in the affairs of nation-states, technology in the material forms of modernized space also, as Latouche asserts, ends nature in the beginnings of "a sort of Megamachine that has now become anonymous, deterritorialized and uprooted from its historical and geographical origins, faceless--but which nevertheless springs from quite unique historical circumstances" (1996: xii). And, like Westernization, the workings of this nature-ending megamachinic force upon the global environment are producing something greater than the sum of its parts with another "worldwide standardization of lifestyles....with the attendant clashes of views, subjection, injustice and destruction....which is imposing a one-dimensional, conformist way of living and behaving on the ruins of abandoned cultures" (Latouche, 1996: 3).

#### B. The End of History

Democracy, as Fukuyama claims, now stands triumphant at the

close of the Cold War, underscoring how decisively the end of history has fallen into place. While other frameworks for the determination of who gets what, where, when, and how have been tried and tested throughout history, the indeterminate outcomes of their workings finally gained resolution in the twentieth century as democracies tussled with totalitarian regimes for control of the world. Political liberalism and democracy, as Fukuyama claims, combines "a rule of law that recognizes certain individual rights or freedoms from government control" (1992: 42) with "the right held universally by all citizens to have a share of political power, that is, the right of all citizens to vote and participate in politics" (1992: 43).

Together, these principles, in alliance with an on-going industrial modernization made possible by the proliferating successes of technology and capitalism, have overseen the destruction of "rival ideologies like hereditary monarchy, fascism and most recently communism" (Fukuyama, 1992: xi). Consequently, liberal and people's democracy is now the dominant institutional means for deciding how natural resources will be organized and used on a worldwide and national basis. Democracy, in turn, becomes a general background condition for determining the nature and uses of the environment after the end of history.

It is so pervasive that according to Fukuyama "we cannot picture to ourselves a world that is essentially different from the present one, and at the same time better" (Fukuyama, 1992: 46).

### C. The End of Otherness

Capitalism, as Lyotard maintains, now surrounds the world with its resources in the embrace of marketplaces, bringing an end of otherness to global human society. No place in the world can truly stand apart and indifferent to the modern market. Real difference, authentic resistance, and genuine otherness melt away into thin air as the identity politics of commodification guarantee that everything "is and will be produced in order to be sold, it is and will be consumed in order to be valorized in a new production: in both cases, the goal is exchange" (Lyotard, 1984: 4). Pre-capitalist feudalism and anti-capitalist socialism as bastions of otherness, standing against the rationalization of commodification, have been imploded by the performativity of capital. In today's fast capitalist economy and society, everything now "is made conditional on performativity. The redefinition of the norms of life consists in enhancing the system's competence for power" (Lyotard, 1984: 64). Recognizing the power of performativity is essential. Indeed, capitalism now constitutes the fixed structures of extracting, exchanging, and exploiting wealth from the Earth globally and locally after the end of otherness. As Marx predicted, all that was solidly otherness is disappearing into the thin air of rational exchange.

### D. After the End: Omnipolitanism?

The eclipse of otherness, history and nature by capitalism, democracy, and technology often is misread in triumphalist terms

as the foundation of Fukuyama's "coherent and directional Universal History of mankind" (1992: xxiii). On the other hand, it could simply indicate how these forces now surround, besiege, and circumscribe all living and nonliving things on the planet as their environment. Accordingly, Fukuyama's vision of "accumulation without end" (1992: 89-97) now leads to the "omnipolitanization" of the planet during the last two or three decades of global economic and social development. Omnipolitanization flows, as Virilio asserts, from the hyperconcentration of urbanized values and technified practices in a "world-city, the city to end all cities," and "in these basically eccentric or, if you like, omnipolitan conditions, the various social and cultural realities that still constitute a nation's wealth will soon give way to a sort of 'political' stereo-reality in which the interaction of exchanges will no longer look any different from the--automatic--interconnection of financial markets today" (Virilio, 1997: 75). Omnipolitanization, in keeping with Jameson's claims about postmodernity, "is what you have when the modernization process is complete and nature is gone for good" (1991: ix). Economy and society, culture and politics, science and technology acquire environmental quiddity as Society engulfs Nature, Economy channels Ecology, Human Organisms beleaguer all Environments. As landscaping forces in an artificial second or even third nature with their own operational times and spaces, these forces range

within/over/beyond the now lost autochthonous verities of first nature's geophysical time/space now dissipating into the dust raised by multiple modernizing projects.

Those who collaborate economically and politically in the collective construction of actual transnationality in these technoformations, in turn, also might not necessarily hold their nominal nationality as dear within traditional territorial space (Reich, 1991). They instead can slip increasingly into other organizational registers of an enterprise application in cybernetic orgware, where machinic time and network space let them work and live as co-accelerant, com-motive, or con-chronous agents of fast capitalist firms. By moving from the spatio-temporal perspectives of specific ecological sites into the acceleration effects of instant communication "all of Earth's inhabitants may well wind up thinking of themselves more as contemporaries than as citizens; they may in the process slip out of the contiguous space, distributed by quota, of the old Nation-State (or City-State), which harbored the demos, and into the atopic community of a "Planet-State" that unfolds as "a sort of omnipolitan periphery whose centre will be nowhere and circumference everywhere" (Virilio, 1995: 36). Many today, like Nicholas Negroponte, exalt this global condition as "being digital," and see the ominipolis as essentially a "city of bits."

Yet, omnipolitanism also might be seen as something very material, like living with toxic wastes -- another way of life

where the center is nowhere and the circumference is everywhere.

As Smith suggests, toxic wastes are "a by-product of energy development, agriculture, and most industrial activity," which now "are found throughout the environment, in our air, water, and soil" (1995: 170). Every modern industrial economy creates these outputs as intrinsic parts of ordinary everyday life. They are centered nowhere, but their circumference is everywhere. While, the U.S. Office of Technology Assessment believes that "there are major uncertainties on how much hazardous waste has been generated, the types and capacities of existing waste management facilities, the number of uncontrolled waste sites and their hazard levels, and on the health and environmental effects of hazardous waste releases" (1983: 13), the ubiquity, opacity, and complexity of hazardous waste indicate how choices made as technology/democracy/capitalism now work as environment. Toxic wastes are simply one of the most obvious anthropogenic qualities of humanity's omnipolitan condition.

Like weather, water, and wildlife, waste is to be found everywhere in the planetary environment, making this omnipolitan by-product a new fundamental and long-lasting characteristic of the Earth's ecology as it is transformed by modern agricultural, industrial, and technological development (National Academy of Engineering, 1989). The mechanisms that place chemicals outside specific locales, boost their concentrations beyond permissible thresholds, raise exposures so intensively as to threaten health,

and disperse effects indiscriminately across space and time are all human artifices -- technology/democracy/capitalism. Some are intended and understood, most are unintended and not at all comprehended, but they now surround all human and nonhuman life forms as elemental qualities in their environment.

## **II. An Omnipolis or the Subpolis**

In fact, omnipolitanization requires us to recognize how allegedly neutral technologies that many associate with "progress" are highly political: their materialized techne reshapes the moral praxes of politics as well as carries the productive effects of power as discipline, discourse, and domination. Any sociotechnical system, once invested in this globalizing ensemble of technology/democracy/capitalism, is also, ironically and immediately, an ethico-political system.

Virilio's omnipolitanism suggests too much about too little. An omnipolis seems to be a city that is everywhere, bringing into being universal citizens who share a common mind and soul. Convergence theories of modernization once thought this outcome would be true, and some still see evidence of tendencies in this direction in technoscientific artifacts, but the highly variegated nature of urban forms, civic cultures, social values, and political practices all around the world does not support Virilio's assertions. Unless we choose to chase some elusive will-of-the-wisp, like global civil society, world public opinion, or Fukuyama's Universal History, something else should

account for the effects Virilio attributes to omnipolitanization without asserting we all now live in one universal city, share a single bond of citizenship, and contribute to some great unitary culture. The world remains far too unruly to accept the cliodicies of such new right Hegelianizing.

What is compelling about Virilio's omnipolitanism is the everchanging messiness of techno-economic infrastructures running just beneath, behind and beside the world's many great, but still quite different, urban places. These turbulent world wide webs move matter, energy, and information from everywhere to anywhere, while at the same time piling up more of these goods and their services in a few places to the detriment of many other places as they pile up even more bads in most places. They work underneath, above, and apart from the polis, but they are also structures of power, systems of exchange, and signs of culture. These subpolitical realms, as Beck indicates, are often misrepresented as the black boxes of science and technology, but their power effects, social values, and cultural practices can be quite enlightening and very open. Instead of leaving us in Virilio's omnipolitan condition, the workings of technology/democracy/capitalism as environment may help us find a subpolis, which these forces are fabricating all over the planet.

The subpolis might be seen as the collective assembly of rationalization practices in technoscience that "preprograms the permanent change of all realms of social life under the

justifying cloak of techno-economic progress, in contradistinction to the simplest rules of democracy -- knowledge of the goals of social change, discussion, voting, and consent" (Beck, 1992: 184). It represents the continuous workings and fixed works of operational powers layered under politics, occluded in technologies from ordinary political understandings, hidden from politicians by the mechanics of markets; yet, these systems and structures are all expressions of human artifice propounded by instrumentally rational design. Like the polis, the subpolis is a built environment, but its constructs all too often are depoliticized in the professional-technical rhetorics of civil engineering, public health, corporate management, scientific experiment, technical design, and property ownership. It involves the quasi-objectivity of subjects embedded practicably in technoformed activities, but it cannot be separated from the quasi-subjectivity of objects circulating en masse in globalized economies of scale. What is not known about the subpolis constitutes much of the binding riders of risk attached to social contracts of technological action.

The subpolis also takes shape in the sprawl congealing in many suburbias, the gridlock freezing flows of traffic, the maldevelopment rising out of rapid growth, and the toxic by-products coming alongside desired products. These shapes of the subpolis surface in all imbrications of people and things. As "the possibilities for social change from the collaboration of

research, technology, and science accumulate," one finds the locus of social order and disorder "migrates from the domain of politics to that of subpolitics" (Beck, 1992: 223). Across the subpolis, what all too often proximally begins individually as a rational plan distally combines collectively as the irrational, unintended, and unanticipated. In those contexts, the workings of modern technics and markets are "institutionalized as 'progress,' but remain subject to the dictates of "business, science, and technology, for whom democratic procedures are invalid" (Beck, 1992: 14). There are many layers in the subpolis related to other industrial, biotechnological, psychosocial, and medical matrices of technoscience/technopolitics/technoeconomics. Unlike the polis, which is a collective of people situated in a specific locality or particular nation-state, the subpolis more commonly is an evershifting assembly of people and technics interoperating with many other technical assemblies and people elsewhere along multi/trans/supernational lines as well as within inter/infra/intralocal spaces.

### **III. The Subpolis: Toxic Waste as Subcivics**

The development of new technoscience disciplines, like environmental toxicology, risk assessment or public health, mark the shift in modernizing processes from a register of unreflexive industrial development to conquer material scarcities to a more reflexive one of risk management amidst the uncertainties of a modernized ecology (Buchholz, 1993; Carnor, 1993). As Beck

suggests, the environmental public health strategies, first begun in the United States after Rachel Carson's Silent Spring (1982), mark one advent for reflexive modernization as artificial technostructures become identified as toxic threats to their creators, who are struggling to overcome natural necessity through the freedoms of artifice.

With all of its practical engagements in public health administration and natural resource management, this genre of environmental science tacitly indicates how the economic imperatives behind technological innovation are now "being eclipsed by questions of the political and economic 'management' of the risks of actually or potentially unlisted technologies-- discovering, administering, acknowledging, avoiding or concealing such hazards with respect to specially defined horizons of relevance" (Beck, 1992: 19-20). With this recognition, the toxicity of many substances--industrial by-products, agricultural chemicals, construction materials, artificial foodstuffs, nuclear waste, automotive fuels, food packaging, synthetic pharmaceuticals to name only a few--becomes contested ground, brimming with actual and/or potential hazards awaiting further interpretation (Steingraber, 1997).

Implicitly recognizing how the ensemble of technology/democracy/capitalism is now environmental, Lappé observes, "we are in the midst of the chemical revolution. It is a given that the chemical industry and its allied field of

pharmaceutical and pesticide manufacture represent dominant forces that are shaping our world....Whatever perspective you take, it is clear that chemicals insinuate themselves into our lives" (1991: 1). Without saying so directly, Lappé confirms how thoroughly revolutionary these ensembles of chemical science, chemical industrialists, and chemical manufactures are becoming, because they are what is refashioning human/ecology relations. Within chemically revolutionized built environments, industrial production and by-production now contribute to the construction of a transnational subpolis of technoscience acts and artifacts set beneath, within, and above each territorial polis still being composed out of political acts.

This technified mode of mounting revolutionary changes in everyday life contributes to the construction of the subpolis. More specifically, narratives of chemical, industrial, nuclear, and ecological revolution, like the comments from Lappé indicate, simply underscore how thoroughly,

now the potential for structuring society migrates from the political system into the sub-political system of scientific, technological and economic modernization. A precarious reversal occurs. The political becomes non-political and the non-political political....The promotion and protection of 'scientific progress' and of 'the freedom of science' become the greasy pole on which the primary responsibility for political arrangements slips from the democratic system into the context of economic and techno-scientific non-politics, which is not democratically legitimated. A revolution under the cloak of normality occurs, which escapes from possibilities of intervention, but must all the same be justified and enforced against a public that is becoming critical (1992: 186).

The chemical revolution is but one facet, albeit a highly toxic one, of a larger wave of technoscientific modernization that has broken over the environment during the last century. Secretive sources of chemical maltransformation tied to purposive processes in industrial by-production insinuate themselves into our lives, because we accept them with any purchase of every bug bomb, paint thinner, synthetic antibiotic or artificial sweetener as technological transformation by industrial production.

Democratic institutions in the territorial polis ordinarily accept these forces without much contestation, because such technoscientific revolutions are believed to bring the good life, albeit at times with a few risks, or those unwanted, but still allegedly quite controllable, noxious by-products of chemical applications. In fact, however, the subpolis of technoscientific artifacts undercuts the workings of conventional political life (Luke, 1997). Beck worries about the unintended effects in the radical subpolitics implied by continuous change in advanced industrial technics. That is, the political system, on the one hand,

is being threatened with disempowerment while its democratic constitution remains alive. The political institutions become the administrators of a development they neither have planned for nor are able to structure, but must nonetheless justify. On the other hand, decisions in science and business are charged with an effectively political content for which the agents possess no legitimation. Lacking any place to appear, the decisions that change society become tongue-tied and anonymous....What we do not see and do

not want is changing the world more and more obviously and threateningly (Beck, 1992: 187).

Environmental toxicology makes the same point about the chemical revolution taking place under the cover of normality within industrial production: what we do not see and do not want from industrial by-production is obviously changing the world quite thoroughly. No body and everybody is, at the same time, deciding to make this happen as industrial democracy lets consumers vote with currency to circulate and accumulate more products without legitimating their by-production processes, even though often we do not immediately see and ultimately do not want them.

Chemicals, then, appear before us as apparently need-satisfying commodities, created by technology and circulated through capitalism. Vetted and licensed by duly constituted authorities, the chemicals are approved, directly or indirectly, by popularly elected representatives through systems of democracy who hire professional-technical experts who can certify their safety. Invented to serve some technical purpose, technology is found throughout the production/consumption/application processes of the chemicals. Thus, the ensemble of forces at work in the environment, once again, becomes an environmental force in the work of the ensemble. The toxicological studies conducted by environmental public health authorities try to overcome the negative effects of those tongue-tied and anonymous decisions that already are always changing society by quantifying the

incidence, level, and severity of the risks produced by technical modernization in the new narratives of "public advisory" reports. The actuarial bottom-line of these public advisories is a public living with the daunting advice of statistical forecasts about incidents of fatality, disability, and illness. For many to enjoy products, a few will be killed with by-products.

In this subpolis, ordinary processes of democratic legitimation fail. Modern chemical revolutions with all of their toxic by-products are highly technified economic actions. Each always "remains shielded from the demands of democratic legitimation by its own character" inasmuch as "it is neither politics nor non-politics, but a third entity: economically guided action in pursuit of interests" (Beck, 1992: 222). Still, the inhabitants of this planetary subpolis have yet to realize fully how "the structuring of the future takes place indirectly and unrecognizably in research laboratories and executive suites, not in parliament or in political parties. Everyone else--even the most responsible and best informed people in politics and science--more or less lives off the crumbs of information that fall from the tables of technological sub-politics" (Beck, 1992: 223). Such informational crumbs become passages in the textuality of toxicity, which toxicological analysis uses to confirm the human costs of chemical revolution, environmental transformation, technological innovation (Smith, 1995). The subpolis evolves in the machinations of many industrial

ecologies, whose machinic metabolism, in turn, entails the planned and unintended destruction of many nonhuman and human lives. Despite what technoscientific conservatives claim only a few perils in technical modernization are imagined; many more, which are grounded upon how we construct, inhabit and enjoy the subpolis, are quite real.

When put into practice, then, most environmental risk analysis unfortunately serves dark purposes as an applied science of mortality management in the polis. To coexist with the technics of wealth production, all implicitly consent to coevolve with the tools and techniques that generate hazardous by-products as part and parcel of their useful products. So many might live more fully with those manufactured goods and services that insinuate their way into our lives, a few must die and/or live less fully as a function of the many inherent bads and disservices intrinsic to the ordinary routine output of the subpolis. This operational necessity is called risk. Just as the polis often must conscript its members to wage war and die for its survival, the subpolis requires a random arrangement for an anonymous decimation of its members in order for it to continue developing. To enjoy the production of wealth by advanced technologies, everyone must endure the systemic by-production of richer risks, recognizing that for every A, B or C benefit of this chemical or that material X people per 10,000, Y people per 100,000, or Z people per 1,000,000 will be harmed by

disease, genetic mutation, and/or death.

Statistics can forecast in general how many people, plants, and animals will be struck by this anonymous violence, but no estimation technique or modelling trick can name which particular individuals will be taken by this brutal regimen of inexorable random decimation. As Beck ironically observes, this is accepted glumly as "progress," or "a substitute for questions, a type of consent in advance for goals and consequences that go unnamed and unknown" (1992: 184).

Because the machinic metabolisms underpinning the ensemble of technology/democracy/capitalism as environment that creates and contains such by-products will not change, everyone must, on the one hand, resign themselves to the fact that such dangerous by-products are a fixed environmental feature in the mix of useful products delivered to them in the marketplace by industrial development. On the other hand, when coping with harmful risks, recognizing that science can deliver fairly reliable probabilistic statements about the rates of their incidence or the levels of their relative severity provides an official guide to individual and group behavior. Risk is simultaneously naturalized (turned into an ineluctable background condition), socialized (reduced to a collective cost born by all), and personalized (transformed into a multidimensional game of various lifestyle choices). To live is to play the odds in large numbers as the overall environment of technological

artifacts, democratic agents, and capitalist acts now encircling and beleaguering us are approached through the illusio of data structures, housing many different statistical statements about multiple arrays of risk. Risk analysis creates the advisories, and citizens thereby become the advisoried masses, struggling to determine the path of maximum likely survival from a stream of health news, food scares, toxic alerts, and hazard warnings about a noxious encirclement by technology/democracy/capitalism.

#### **IV. The Subpolis: Governmentality/Ungovernmentality**

While toxic wastes can be found everywhere, conventional politics ironically guarantees that this side of the subpolis will be most easily discovered in a few places, particularly those inhabited by the poor, racial minorities or powerless ethnic groups who are all neglected by the larger majority in society. As Bullard asserts, these peoples often are considered "throw-away communities," and their lands are used for "garbage dumps, transfer stations, incinerators, and other waste disposal facilities" (1994: xv). The environmental justice community opposes this sort of "environmental discrimination" by insisting upon concern for "social equity" and "distributive impacts" (Bullard, 1994: 3) in the negative effects of industrial by-products. Yet, it cannot succeed solely by shifting the focus of mainstream environmentalism, or "protecting the environment from humans," to a simple form of environmental justice, or "protecting humans from the environment" (Bullard, 1994: 139).

Because we have not protected Nature from humans, it is now different in many respects--it has become "denatured." Unintended, unanticipated, and irrational effects become chaotic contradictions confronting humanity, but coexisting with humans beyond their current understanding or control. To attain environmental justice, just environmentalism, as we have defined it thus far, is no longer enough. Instead, the regimes of governance that permit these inequities to develop must be reassessed and then reconstructed to cope with the emergent qualities of new environmental background conditions, which many relieve to be what is "ungovernable" in our modernized environment of technology/democracy/capitalism.

As early as the sixteenth century in Europe, princes and their retainers introduced notions of economy into political affairs as an essential aspect of statesmanship with the practices of government. Government, as Foucault argues, became understood as "the right disposition of things, arranged so as to lead to a convenient end" (Foucault, 1991: 93). By the age of enlightened despotism, codes of governmentality effuse collective life in "the proliferation of political technologies that ensued, investing the body, health, modes of subsistence and habitation, living conditions, the whole space of existence" (Foucault, 1980: 143-144). The rise of complex global markets and dynamic national economies in the twentieth century render the boundaries between political and economic, technological and social, public

and private much more problematic, because the modern regime of biopower assumes technology/democracy/capitalism act as environments.

The acts and artifacts concocted by Fukuyama's "accumulation without end" in technical/democratic/capitalist modernization constitute many of the things one must rightly dispose of, and arrange so as to serve convenient ends, in the developing civil society of capitalist economies:

...what government has to do with is not territory but rather a sort of complex composed of men and things. The things with which in this sense government is to be concerned are in fact men, but men in their relations, their links, their imbrication with those other things which are wealth, resources, means of substance, the territory with its specific qualities, climate, irrigation, fertility, etc.; men in their relation to that other kind of things, customs, habits, ways of acting and thinking, etc.; lastly, men in their relation to that other kind of things, accidents and misfortunes such as famine, epidemics, death, etc. (Foucault, 1991: 93-94).

The subpolis shapes, and is itself shaped, by this imbrication in the polis of humans and things as "the possibilities for social change from the collaboration of research, technology, and science accumulate," particularly when unchanging territorial jurisdictions and stable political institutions see that the organizational power activated by governmentality, once again, as Beck suggests, "migrates from the domain of politics to that of subpolitics" (Beck, 1992: 223).

The ungovernable, like pollution, hazardous waste, risk, is "the reflection of human actions and omissions, the expression of

highly developed productive forces," which underscores how greater governmentality leads to more ungovernmentality as "the sources of danger are no longer ignorance but knowledge; not a deficient but a perfected mastery over nature; not that which eludes the human grasp but the system of norms and objective constraints established with the industrial epoch" to extend the human hold over nature and society (1992: 183). The social disarrays of collective choice promote many more inconvenient ends, because Foucault's governmentality also coproduces its double: ungovernmentality. Much of this ungovernmentality, in fact, flows from chaotic clusters of opaque relationships between things and people that tally up as inconvenient ends. Often the right disposition of people and things in one set of assemblies creates a wrong indisposition between people and other people or things and other things in many different collectives. These wrong relations of indisposed people-and-things with other people or other things is the source of polluting, toxic, biohazardous sets of relations.

Even more unfortunately, what is accepted as ungovernable often is confused with being free, and liberal philosophies of agency and society often have purposely intertwined themselves with ungovernmentality in a most unproductive fashion in the name of more choice and less regulation. Foucault's insights about the workings of governmentality pertain mostly to the domain of the polis, or the political amalgamation of sovereignty,

territory, and populations in the nationalized space and time of definite polities and economies known as countries. The second order consequences of effective governmentality in the subpolis, like industrial overdevelopment, unregulated economic growth, concentrated urban sprawl, and unreasoned technological bloat, now are found to be the costly frictions of ungovernmentality. They usually are embedded within the scope and methods of the subpolis, which infiltrate transnational space and time as the indefinite polities and economies of artificial eco-systems. This wrong indisposition of all other things and people, which attends the right disposition of a few things and people, is an intrinsic by-product of every product as technology/democracy/capitalism become environment. And, this by-production appears as the toxic wastes, industrial pollutions, artificial biohazards, and chemical contaminants that cause environmental destruction; yet, even more ironically, most of this comes from planning, knowledge, and affluence, not carelessness, ignorance, and scarcity.

Here all of the contradictions in the subpolis bring their disruptive influence to the surface of our public life. Technology predetermines collective ends without much, if any, ethical discussion or political deliberation, because those who "know-how," as well as those who "own-how," are permitted to prejudge everyone's actions. Their expert knowledge and private ownership give them the capability to decide for all. Democracy,

in turn, finds administrative rationalities turned into collective ends in themselves without much, if any, ethical debate of political discussion, allowing bureaucratic agencies to allocate resources, select policies, and legitimize elites in accord with closed technical criteria. And, capitalism's quest for greater productivity and efficiency anywhere anytime anyplace devalue personal ownership, individual craft, and private care in favor of more growth, novelty, and choice without much, if any, ethical consideration or political reflection about its effects on the overall civic life of the society.

To conclude, technology/democracy/capitalism are our built environment, the complex ecology of industrial metabolisms, an anthropogenic site for interrelating all living and nonliving things to all of their surroundings. It works beneath/behind/beside the polis, and it quite often is explicitly politicized. Nonetheless, the systems of productive power that it rests within are rarely seen as realms of citizenship or statesmanship, because of the age-old consignment of their operations as techne to the estate of mechanics, slaves, and women where work is done. If ungovernmentality is to be managed, this neglect must be amended. The Aristotlean preemption of the subpolitical by the political exalts the realm of leisured, educated, free men over other subaltern actors without paying serious attention to its material sustenance or machinic infrastructure underpinning the ecologies that sustain everyone

and everything. If we stand at the end of Nature, History, Otherness, we cannot continue on this track: infrastructures and superstructures must be reattached in the constructs of ecology, because the citizen must be a mechanic and/or the mechanic should become a citizen if the Earth's ecologies are ever to be mended.

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