

From the Cold War to the Hot Zone: Nature, Capitalism, and the Postmodern Apocalypse

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In 1945, General Motors ran an advertisement in *Life* magazine that neatly captures an emerging post-war understanding of nature. The ad, entitled "What's Left to Discover?", features a dialogue between a boy and an old gun, to which the boy's father responds.

Gee," says the boy to the old gun, "I wish I could have been along with you on those turkey shoots. I wish I could have helped you blaze the trails and chart the rivers.

"I wish I could have lived when you were new. There were places to explore then, surprises around every bend in the stream. What's left to discover now?"

What's left? A whole new world of things, Son. Lift up your eyes for a minute and you'll see that men are still pioneering on the unending frontiers of science and production. Exploring among new alloys, creating new fuels, discovering new ways to mass-produce, they are finding new methods to make thousands of good and useful things . . . For this spirit of venture, this thrust into the unknown, is the thing that made America great. We will need all we can get of it in building a

better peacetime world filled with more and better things for more people (23 July 1945, p. 10).

In this, mankind and technology are the agents blazing this Cold War frontier, while nature is the passive and docile provider of raw materials for it. Nature, the ad assumes, has been harnessed and could now be ridden, safely and reliably, into the new frontiers of commodity production.

Half a century later, Richard Preston wrote, in his best-selling "nonfiction" thriller *The Hot Zone*, that:

The emergence of AIDS, ebola, and any number of other rain forest agents appears to be a natural consequence of the ruin of the tropical biosphere. The emerging viruses are surfacing from ecologically damaged parts of the earth In a sense, the earth is mounting an immune response against the human species. It is beginning to react to the human parasite, the flooding infection of people, the dead spots of concrete all over the planet, the cancerous rot-outs in Europe, Japan, and the United States, thick with replicating primates, the colonies enlarging and spreading and threatening to shock the biosphere with mass extinctions (1994, p. 287).

Far from being the harnessed draft horse of the 1950s, nature at the end of the twentieth-century has become the bucking bronco of postmodernity, intent not merely in throwing her riders, but in trampling them beneath her thrashing hooves.

This paper seeks to understand this re-orientation of the relationship between humanity and nature within the context of large-scale shifts in the forces of production. It is, in short, interested in the uses of nature, or the ideological and economic ends to which nature is being put. Historically, nature has served as an organizational trope used to police and maintain the boundaries of societies. What is "natural" is therefore legitimate and socially sanctioned, as feminists and historians of sexuality have pointed out. As an organizational trope, the category of nature has been fundamentally unstable--nature and the concepts of the natural that proceed from it change in relation to historical and material changes. Rather than being a fixed, material referent, cultural understandings of nature in the twentieth century have depended on the status of knowledge in a given society and the economic and political needs of its social order. As Karen Sacks observes, "nature is an unconscious metaphor for industrial capitalist social relations" (1979, p. 3). As such, nature has been elastic enough to accommodate changes in material circumstances and necessities, while at the same time, it has been rigid enough to maintain specific ideological contours and functions. As Donna Haraway has said, nature serves as the grounds for an elaborate ventriloquist act, in which it can be made to speak for the political and economic interests of its representative, where "Permanently speechless, forever requiring the services of a ventriloquist, never forcing a recall vote, in each case the object or ground of representation is the realization of the representative's fondest dream" (1992, p. 311).

I am not suggesting that objective realities do not exist. Nor do I wish to pursue the course of Haraway's line of reasoning, which suggests that we should see nature as subject rather than passive object, or as a partner in political opposition. Communities, particularly those located in

economically devastated regions, are being poisoned by toxic waste, threats to public health are rising in relation to an increasingly unequal distribution of wealth, and acts of violence against humans and animals alike continue to be socially sanctioned. Yet however romantic and whimsical the notion, I do not believe that it is possible to organize animals, in the political sense of the word. The problem with which this paper engages is how information about these events is being organized for us within the media and the political implications of that organization.

Since shifts in representations of nature are related to shifts in information and resources within the sciences themselves, dominant scientific paradigms are frequently invoked to authorize popular understandings and representations of nature, what is natural, and therefore what is thinkable in terms of social relations. "The science we get," writes Robert Young, "is the science which is funded" (p. 173). Similarly, the nature we receive from the mass media is a nature structured by the scientific paradigms that are funded and publicized. As Jose Van Dijck puts it, "A scientific paradigm, in order to gain recognition, needs not only government approval but also the support of scientists and scientific institutions, public understanding, and capital investment" (pp. 221-223).¹

Given the structure and function of an increasingly globalized mass media, our information about the world is even more mediated and diffuse than in the past. Like Richard Slotkin, "I think it is useful to speak not only of 'mass culture' but of the development of an 'industrial popular culture,' whose artifacts are produced primarily by a commercial culture industry but whose symbols become active constituents of a national audience or public" (1992, p. 9). To speak of the marketing of nature and of "industrial popular culture" is to insist on the connection between representations of nature on one hand and economic interests on the other. This insistence on the forces of production is particularly important with regard to the transmission of information about nature from places distant from the centers of information processing in the U.S.

The Cold War, Culture, and Big Science

Given the wholesale destruction of the environment that has taken place since World War II, it is difficult to capture the enthusiasm and wonder expressed by the media after the atomic bomb was dropped on Hiroshima. Industrial popular culture was mesmerized by the massive technoscientific enterprise that had produced the bomb.

The city that history will know as the cradle of the atomic bomb did not even exist three years ago. In 1941 Oak Ridge, Tenn. was just one more pine and oak-stippled rise among the sleepy hills near Knoxville. From the 92 square miles surrounding it tight-lipped federal officials began clearing its sparse population-- 3,750 wondering hill folk. No one knew why. Mysterious and enormous construction projects began--purpose unknown. On July 3, 1943 the first family moved into Oak Ridge's first home, a trailer. Then the miracles began ("Mystery Town Cradled Bomb," 1945, p. 94).

Life Magazine marveled as "cyclotrons and gamma rays suddenly moved out of the basements of physics laboratories" (Wickware, p. 100). The mass media, charged with the ideological duty of

legitimizing the use of the bomb, contained nothing that expressed horror or remorse about the deaths at Hiroshima and Nagasaki--dead who were, after all, only "Japs." The development of the bomb itself was represented as the inevitable outcome of scientific and technological competition with Nazi scientists. In 1945, just after the first atomic bomb test in New Mexico, "U.S. Army technical experts came up with the astonishing fact that German scientists had seriously planned to build a 'sun gun,' a big mirror in space which would focus the sun's rays to a scorching point at the earth's surface. The Germans, the army reported, hoped to use such a mirror to burn an enemy city to ashes or to boil part of an ocean" ("The German Space Mirror," 1945, p. 78).

The post-Hiroshima marketing of the Atomic Age sought to alleviate fears accompanying the new nuclear age. Although initially it was said that "more people expressed fears than any kind of optimistic hope over this new compact energy source with its shattering, staggering power for destruction" ("Victory Reports," p. 38), the weapon that had decimated Hiroshima and Nagasaki was now transformed into a creative, progressive force, capable of enhancing rather than destroying nature. Of the bomb, President Truman observed, "We now know that the basic proposition of the worth and dignity of man is not a sentimental aspiration of a vain hope or a piece of rhetoric. It is the strongest, most creative force now present in this world." ("Truman Reports to the Nation," 1945, p. 34). Indeed, the creative potential of technologies produced for destruction was a common theme in the years following the war's end. An ad for General Electric was improbably titled "War Machines that Save Lives" (8/13/45, p. 60) and an article entitled "Insect Enemies: They Cost the U.S. 3 Billion Dollars Annually," spoke of "The great promise of a powerful insecticide like DDT, which is just coming on the market" (1945, p. 59).

Indeed, research practices that are repugnant today were celebrated in an Enlightenment language of progress and knowledge. The irony we may now see in a letter to the editor in *Life* magazine in response to an article on radiation experiments, in which rats were literally sewn together and exposed to radiation, was lost on the editors. Catherine S. Goodnow wrote:

I appreciate so much your letting me see the great advances science is making in experiments with the rodent. It is truly enlightening to find that, having flesh like ourselves, he can be burned and blinded when exposed to forces that burn and blind and that, when half dead he can be further harried by cold blasts in a treadmill. It is also heartening to know that he can be sewed together with another of his species and even live that way, crawling about, a monument to man's skill and creative ability (2/17/47, p. 15).

In an article entitled, "Inside the Stomach: Tests on Dog Show Organ at Work," the benefits of scientific research were further extolled, "For three years doctors at New York's Mount Sinai Hospital have been photographing the inside of a living stomach. The stomach belongs to a cooperative little dog named Whisky, who does not seem to mind this invasion of privacy at all. The pictures on this page were made by special cameras through a permanent incision which has been opened in Whisky's abdominal and stomach walls" (1947, p. 47).

Scientific understandings of nature and the role of scientific expertise in legitimizing these understandings permeated all aspects of U.S. culture. As Elaine May puts it, "Postwar America

was the era of the expert. Armed with scientific techniques and presumably inhabiting a world that was beyond popular passions, the experts had brought us into the atomic age. Physicists developed the bomb, strategists created the cold war, and scientific managers built the military-industrial complex" (1988, p. 26). After Hiroshima, "The 'absent-minded professors with their theories of relativity and interminable formulae shed their black alpaca coats and overnight donned the tunic of superman" (Wickware, p. 100). "For centuries scientists have worked to know the atom and release its power," one headline announced. The accompanying article also providing an august genealogy of scientists involved in this heroic endeavor, from Sir Isaac Newton to J. Robert Oppenheimer, "a brilliant theoretical physicist, [who] directed atomic bomb research at Los Alamos, New Mexico. He supervised experiments which led to bomb" ("The Atomic Bomb," 1945, pp. 92-3). According to this genealogy, the history of science culminated in the bomb. And, in 1945, it had: the bomb appeared to be the newest and brightest jewel in the crown of science.

Indisputably, physicists and other scientists were producing new knowledge, new materials, and new understandings of the natural world. What is of importance here is what Young describes as the generation of values (which are then naturalized) from science (1995, p. 174), or how new knowledges were stitched into already existing ideological narratives. For example, the translation of nuclear physics and the superhuman feats of nuclear physicists into industrial popular culture underwrote a secular faith in man's expert ability to control nature. That scientists were obviously among the first to recognize the devastating consequences of atomic energy and were the first to organize against the bomb barely mattered--little attention was paid to these protests in the media.

Both Paul Boyer and Robert J. Lifton suggest that denial and silence about the consequences of the atom bomb indicated a deep-seated horror about nuclear weapons. But as May points out, "Atomic energy presented a fundamental contradiction: science had developed the potential for total technological mastery as well as for total technological devastation" (p. 23). In order to market the creative and productive control of nature, its potential for total technological devastation had to be downplayed. The media could hardly publish articles critical of technologies alongside the very ads that were selling them.

Consequently, the brave new world created along with the bomb gave no hint of any contradictions about the harnessing of nature until after the Soviet Union produced their first atomic bomb in 1949. Nor did this brave new world express any of that now familiar longing for an organic natural world. Instead, whole series of ads embraced technology and the scientists who authorized it. In 1946, the Can Manufacturers Institute ran a series of ads entitled "Gone are the Good Old Days, Thank goodness!" The ads contained a series of vignettes, all of which illustrated how much better life was due to modern technologies. One such vignette commented, "The course of true love probably ran no more smoothly, about 1905, than it does today--and with far more mosquitoes! For in those days, folks fought mosquitoes simply by burning 'punk sticks.' But the modern can helped change all that! Now we have powerful insecticides whose potency is lastingly protected by cans--some complete with 'shoosher'--easy and convenient to use" (*Life*, 20 May 1946, p. 58). Another ad for Olin Industries proclaimed ". . . Ring in the New!", with images of bells ringing above skyscrapers, airplanes, ships, cars, and a streamlined railroad train. The text below proclaimed:

New uses for Western metals turn up day by day. As each evolves, special problems must be met. For, while all products seek to change and improve the shape of everyday living, none can successfully deny the basic laws of chemistry and metallurgy. These laws guide us in the making of every pound of Western metal. We sell not mere metal, but the opportunity for manufacturers to reduce production costs, increase the serviceability and all 'round value of their products (*Life*, 10 June, 1946, p. 101).

Indeed, such ads were not selling mere products, but a whole way of life, with science and technology now in the employment of benevolent commodity production rather than military destruction. Another ad claims that Bendix aviation "makes science your obedient servant" because "The active minds of Bendix engineers are constantly advancing progress in new directions -- finding new and better ways to make modern science serve you" (*Life*, 6 May 1946, p. 119). The image in the ad shows a smiling woman standing near her new radio (at the center of a series of concentric circles) and surrounded by images of the new technologies that have apparently made her so happy.

Secular faith in science was taken to almost incomprehensible extremes during the late forties and into the 1950s. Even that most overtly politicized and demonized branch of the sciences--eugenics--became a vehicle for advertising. Niblets Corn ran an ad entitled "Eugenics in a Cornfield, or How Niblets Brand Corn Gets that Way." The ad states,

The Green Giant seed experts shown here are measuring sample ears of our exclusive D-138 type seed, parents-to-be of Niblets Brand whole kernel corn. It's Planned Parenthood, so the identical Niblets Brand labels you see in your store will always surround the identical quality of corn you like to see on your tables (*Life*, 10 June 1946, p. 21).

That eugenics--of all branches of the natural sciences--could be used to sell products little more than a year after Nazi atrocities had been revealed in the pages of the same magazine, testifies to the power of scientific expertise in U.S. culture.

During the Cold War, the media emphasized man's control of, and over, the natural world. The Manhattan Project was said to "have harnessed nature's basic forces" (Wickware, 1945, p. 91). Nature, having been tamed, could be harnessed like the atom, select aspects could be eradicated (e.g. insects through the use of DDT or viruses through vaccination), and ultimately domesticated to serve human needs. Nature, moreover, behaved (if not with complete predictability), then in accordance with certain hierarchized laws. As Donna Haraway has pointed out with regard to DNA, the central dogma reflected the belief in an orderly, hierarchized universe: "DNA makes RNA, RNA makes protein, and protein makes us" (*Life*, May 1980). Once Watson and Crick had cracked the code, so to speak, it was expected that genes would behave in an orderly, rational manner. In fact, theories that contradicted this logic, like Barbara McClintock's theory of transposability, were met with stony silence by other scientists (Keller, p. 172).

Of course, this Enlightenment tale about modernity and progress was made possible by the economic climate of the post-war period. Having lived through the Depression and the economic and political instability of World War II, the U.S. had entered a period of unprecedented economic growth and financial stability. Despite dire predictions made by both Marxists and conservatives (namely, that the end of the war would produce another, even more severe economic depression), "The hard times of the 1930s were gone; people were loaded up with uncashed war bonds, and savings accounts bulged" (Solberg, 1973, p. 9). Employment was plentiful for middle- and working-class white men and the main scarcity had to do with a shortage of housing rather than jobs. In short, faith in science and its control of nature was held in place by the material manifestations of its prosperous largesse. Man's control of nature was a positive and creative ability that generated an abundance of commodities.

But although nature had been controlled, the question that arose immediately after the bombs had been dropped devolved around ownership of nature's secrets. Bernard Baruch, who coined the phrase "The Cold War," stated, "Science has taught us how to put the atom to work. But to make it work for good instead of evil lies in the domain dealing with the principles of human duty" ("The Baruch Plan," 1946, p. 35). For John Foster Dulles, then U.S. delegate to the United Nations, "when we consider what to do with our knowledge of atomic energy, the question is whether if we communicate that knowledge, we communicate it to a nation whose leaders accept a live-and-let-live policy or whether they are intolerant and fearful of difference, and believe it right to use ruthless methods to conform others to their particular pattern" (1946, p. 130).

Here, the U.S. and its leaders were represented as endorsing such a live-and-let-live policy, as being a nation tolerant of difference, while the USSR was its diametric opposite. When a fourth atom bomb was exploded on the Pacific island of Bikini in May 1946, it was said that "The natives agreed to give up Bikini because the Navy told them the U.S. wanted the atom bomb's destructive power to be used for 'the good of mankind'" ("Atom Bomb Island, 1946, p. 107). Threats to U.S. control of nature, not to mention the natural cohesiveness and integrity of U.S. culture, were displaced onto a political enemy external to U.S. society: the Soviet Union. Although the threat of nuclear apocalypse loomed large in popular culture by the end of the fifties (particularly in science-fiction novels, films and television), even such apocalyptic narratives took an instrumentalist approach to nature: if an apocalypse occurred, it would happen through the political agency of fanatical communists or some inadvertent human error that provoked the communists.²

The actual stakes in the struggle for control of nature were straightforward in 1945: "Russia is the No. 1 problem for America because it is the only country in the world with the dynamic power to challenge our own conceptions of truth, justice and the good life." In order "to equal the communist talent for persuasion we must develop persuasiveness of our own" ("America and Russia," 1945, p. 20). In the U.S., the persuasive campaign was twofold: to convince the domestic population that science and technology could control nature and produce positive benefits for all humanity and to insist that such positive benefits depended on the containment and control of scientific information within the boundaries of the United States.

The elaborate marketing of U.S. control of nature constitutes one of the most massive and sustained propaganda efforts in media history, forming a symbiotic relationship with one of the

newest spawns of technology, television.³ However, I am not convinced that persuasion was the operative term in regard to the second aspect of this campaign, or the containment and control of scientific knowledge within the U.S. People might well have been convinced that controlling nature was positive when such optimism was reinforced by the materiality of economic plenty. But fears about who would control nature were mobilized to produce support for the growth of the military-industrial complex, the Red Scare, the executions of Julius and Ethel Rosenberg, and domestic repression of political speech. And when only one world view is presented to audiences--a world view said, moreover, to represent the reality of physically distant events, only with difficulty can we speak of persuasion.

In other words, it is important to keep in mind that while industrial popular culture was celebrating the virtues of the new Atomic age, it was at the same time using fears about human agency to legitimize economic policies oriented to the rise of the military-industrial complex. As McLauchlan and Hooks observe,

The success of the Manhattan project, which became a spectacle and major propaganda event with the atomic bombings of Japan and the widely publicized claim that the bombings were both necessary and ended the war, was a central legitimation for a postwar science-intensive military project (1995, p. 755).

The success of such legitimation depended on the production of a globe divided into two sectors, with easily identifiable heroes and villains: the U.S. and its enemy behind the Iron Curtain. In a 1960 speech, John F. Kennedy somewhat hysterically claimed:

The enemy is the Communist system itself--implacable, insatiable, unceasing in its drive for world domination . . . This is not a struggle for supremacy of arms alone. It is also a struggle for supremacy between two conflicting ideologies: freedom under God versus ruthless, godless tyranny (in Walker, 1993, p. 132).

In industrial popular culture, the battle lines were fixed--the central threat to so-called National Security was ideological contamination--a fear expressed through the omnipresent anonymity of the communist and her fellow travellers.

However, the very designation of the Cold War as a clearly demarcated struggle between America and Russia disguised a crucial reality of the period: while harnessing nature may very well have provided comfort and security in the First World, the material effects of this control were experienced in the Third World, where the threat of war was neither cold nor distant, but hot and terrifyingly close. At a time when the First and Second Worlds moved into the longest period of peace since the nineteenth century, the U.S. set out to maintain and expand capitalist hegemony in the Third World using whatever means necessary: from the CIA-sponsored overthrow of Jose Arbenz in Guatemala in 1954 (shortly after he had announced a land redistribution program) to the assassination of democratically-elected Patrice Lumumba in the Belgian Congo in 1961. The irony of the threat of nuclear war--of mutually assured destruction--was, as Martin Walker remarks, "that Europe, the crucible, remained edgily at peace; the vast bulk of the Cold War's fighting and dying took part in Asia, the Middle East, Africa and Latin

America. People with brown and black and yellow skins paid the price of what had begun in Europe as a white men's quarrel" (p. 60).

The Hot Zone--Nature as Agent

During the Cold War, the traffic between science and nature produced fears and anxieties specifically oriented to the legitimation of the military-industrial complex. The instability of national defense and energy policies since the early 1970s, technological disasters such as Bhopal and Chernobyl, and the collapse of the Soviet Union in 1989 have engendered a shift in the descriptions and prescriptions of the natural, which corresponds to a wider shift in the techno-science industry: from the technological determinism of the Manhattan Project to the biological determinism of the Human Genome project (the single largest scientific research program in the U.S. since the Manhattan Project and also partly managed by the Department of Energy, whose institutional precursor oversaw the Manhattan Project). McLauchlan and Hooks note that the Persian Gulf War "was systematically socially constructed as an advertisement for continuation of U.S. dominance in military high technology" (1995, p. 766-7). Similar claims can be made for the Cold War and the contemporary marketing of biotechnology.

While constructions of nature may vary, historical continuities inhere in the ends to which nature and the natural are put. In contrast to the Cold War, the post-nuclear age is structured around the threat not of nuclear war, but of biological apocalypse: a vision of an environmental catastrophe with natural rather than man-made origins. In the nuclear age, man was in control of the means of destruction, but in the post-nuclear, geneticist model (which includes a curious reincarnation of the "primitive"), man is controlled by nature once again, in spite (or perhaps because) of his attempts to control. *The Hot Zone's* account of a natural world out of balance operates through a logic of biological contamination (overpopulation in Third World Countries, environmental pollution, and the spread of infectious diseases) that, as we shall see, effectively serve the political purposes of the ruling class.

During the 1950s, fears and anxieties about scientific progress mainly appeared through the genre of science fiction, in films like *Them!*, about giant mutant ants running amok in the Southwest, *The Day the Earth Stood Still*, about an alien who travels to earth to give humans an anti-nuclear warning, and in television programs like *Tales of Tomorrow*, *The Twilight Zone* and *The Outer Limits*. As the optimism and enthusiasm that accompanied the nuclear age ebbed in the sixties, evidence of the price paid for industrial production became too widespread to be ignored by the media. Despite the space race, seen by some as the apex of Cold War technoptimism, industrial popular culture's secularized faith in science was headed for some rocky ground. In 1962, Rachel Carson's *The Silent Spring* chronicled the devastating effects of pesticides (especially DDT) on the environment and predicted dire consequences if the situation was not dramatically reversed. As the war in Vietnam escalated, links between big science and the military forced many to question the project of modernity and the role of big science within it. Ideals of scientific progress and expertise that had once authorized the marketing of technologies and consumerist practices no longer supported the notion that same science was humanity's "obedient servant," especially when that science was now revealed to have conducted the racist Tuskegee experiments and to have contributed to the hole in the ozone layer discovered in 1973.

Science and technology, driven by global economic expansion, now were causing terrifying changes to the environment. As Eric Hobsbawm observes,

This was even more disquieting than the prospect of the man-induced catastrophe of nuclear war which haunted imaginations and consciences during the long Cold War; for a Soviet-US world nuclear war was avoidable and, as it turned out, was avoided. It was not so easy to escape the by-products of science-linked economic growth (1994, p. 551)

Hobsbawm's description of nuclear war as a "man-induced catastrophe" is a significant one, since it reflects the central distinction between representations of nature during the Cold War and the emerging nature of the Hot Zone, or the distinction between a fully domesticated nature and a nature that had broken its shackles and was now wreaking its awful revenge. Where notions of containment, deterrence, mutually assured destruction, and even the Cold War itself implied human agency, increasingly after 1990, the impending war posited nature as a reinvigorated agent, with humanity as the target.

There is no doubt that the coming plague, the looming viral or microbial apocalypse, owes much to the AIDS pandemic--the rhetoric of which has been thoroughly analyzed by cultural studies scholars like Paula Treichler, Simon Watney, Cindy Patton, and Douglas Crimp. The emergence of a mutation of a particularly virulent, right-wing strain of AIDS rhetoric is of special interest here. After the first reports of AIDS in the early eighties, the religious right thematized HIV and AIDS as God's judgment on the unnatural lifestyles of gay men. Pat Buchanan said that homosexuals were "making war on nature" (in Hitchens, 1996, p. 10). The media attention to "emerging viruses" from 1990 on is homologous to the right's narrative of retribution, with some significant shifts that conceal its connections to the homophobic and racist ideologies of the religious right. First, this narrative invokes a whole host of deadly viruses rather than a single, deadly, Old Testament plague. Second, the agent of retribution is no longer God, but nature itself. But while the war may no longer be waged by the righteous armies of the Lord, it remains a war, now fought by the equally angry and vengeful forces of nature. As *Time* magazine observed, "Humanity once had the hubris to think it could control or even conquer all these microbes. But anyone who reads today's headlines knows how vain that hope turned out to be" (Lemonick, 1994, p. 62). Or as Laurie Garrett, author of the best-selling *The Coming Plague*, put it:

That humanity had grossly underestimated the microbes was no longer, as the world approached the twenty-first century, a matter of doubt. The debate centered not on whether *Homo Sapiens* was increasingly challenged by microscopic competitors for domination of the planet; rather, arguments among scientists focused on the whys, hows, and whens of an acknowledged threat (1994, p. 550).

The battle lines in this struggle for domination are no longer the political and ideological lines of the Cold War, where domination of the planet was a struggle between the U.S. and the Soviet Union. Instead, the battle lines are between an increasingly localized nature and civilization and they are not neatly drawn, but constantly shifting. As "Killer Viruses," a program broadcast on

The Learning Channel observed, "We are living in a world that has no frontiers" (26 February 1996).

The autonomy of nature is a constant theme in emerging virus narratives, particularly that of Ebola virus. "Ebola," Richard Preston claims, "is an emerging virus from the rain forest; it seems to come out of tropical ecosystems Where Ebola hides in the rain forest is a mystery" (1995, p. 43). "Are there other viruses as dangerous as HIV--or even more dangerous--lurking on the edge of civilization," asks Dr. Karl Johnson, a world-renowned virologist (Lemonick, 1995, p. 63). Paradoxically, this narrative of nature as vengeful agent functions to reconsolidate scientific expertise and authority. Again and again one sees minor critiques of Cold War technoscientific hubris: "The development of antibiotics once had doctors predicting that infectious diseases would be conquered by now. Instead, in the last decade new infections . . . suddenly began killing hundreds of thousands of people" ("Doctors Tell of International Resurgence," 1996, p. A12), "After being virtually eradicated in the Western Hemisphere, dengue fever . . . is reemerging with such force that it has now reached epidemic proportions" (Rohter, 1995, p. 5), "Back in the 1970s, medical researchers were even boasting that humanity's victory against infectious disease was just a matter of time" (Lemonick, 1994, p. 64). Yet these critiques are invariably accompanied by a renewed sense of faith in science: "All this does not mean that people should panic . . . [Instead] the findings should persuade governments and drug makers to finance research to fight back" ("Doctors Tell of International Resurgence," 1996, p. A12), "Armed with a new confidence that it is possible to wipe out diseases that have plagued humans for centuries, international health and development officials announced today a final assault on one debilitating tropical malady" (Leary, 1995, p. A10), "The findings hold promise for developing a test for the disease and could lead to effective therapies for it" (Altman, 1995, p. A14).

As in the Cold War's use of scientific imagery, the narrative of emerging viruses and disease-causing microbes does not directly reflect how scientists understand these biological entities: microbes don't set out to kill their hosts (biologically, that would be stupid), they don't lurk in jungles like predators, and they don't prey on civilization. The personification of viruses and the narrative of emerging viruses serve two main functions in the media. First, they abstract viruses and nature from material contexts and obfuscate the role played by capitalism in creating circumstances in which epidemics of disease are not only possible, but likely. The emergence of viruses directly from jungles and rain forests suggests that, aside from "natives" and animals (the alleged natural reservoirs for disease), there is no traffic between these areas and so-called civilization. Dr. Bill Close, formerly chief doctor for the Congolese Army in Zaire and currently the liaison between the Zairean government and the C.D.C. in Atlanta, described Ebola as "a huge, lethal African Hemorrhagic fever We all sort of feel that Ebola comes out of its hiding place when something occasionally alters the very delicate balance of the ecosystems" (Preston, 1995, p. 45). Close goes to great extremes in his "documentary novel," *Ebola*, to emphasize the natural origins of the virus. Yet all four ebola outbreaks (in Sudan and Zaire) were directly linked to hospitals--to what are known as iatrogenic causes, or those induced by the actions of physicians, such as lack of medical supplies and equipment, re-use of needles, and poor sanitation. As one report commented, "Typically the real explosion occurs in hospital settings Once you stop that hospital spread, it tends to die out very quickly" ("Experts Step up Battle Against Virus in Zaire," 1995, p. 4). And in one of the few instances where a resident

of Kikwit, Zaire, is permitted to speak, Mpouta Kalunga says, "This is something that has come from the hospital It has nothing to do with a curse, nothing to do with spirits" (French, 1995, p. A8).

The apparently mysterious emergence of viruses from the forest primeval also ignores a growing body of evidence that suggests that viruses and antibiotic-resistant strains of bacteria are linked to environmental factors that compromise human immune systems, such as overuse and misuse of medicines, pollution, chronic poverty, and starvation. The representation of nature as agent, and viruses as her instrument of revenge, forecloses the possibility that capitalist economic policies might be responsible for the rise in infectious diseases. The role that such policies play is effaced by the desire to solve these mysteries by identifying the natural origins of disease, despite the fact that epidemiologists have long understood the link between epidemics and the social environments in which they occur. Virologist Bernard Fields observes,

Though the catchall phrase "lowered immune response" was traditionally used to sidestep the mystery, little was known at the microbial level about how such factors influenced events. A starving child might make less protective mucus for his intestinal and stomach linings, for example, exposing more M-cell receptors to passing viruses (in Garrett, p. 582).

When such other causes are mentioned by the media, however, they are invariably glossed over in the pursuit of the "natural" disease-causing agent.

Second, the narrative of emerging viruses functions to reproduce racist fears by suggesting that the coming plague will emerge from the rain forests, jungles, or slums of the uncivilized Third World to bear down on the United States. Preston remarks that "We live in a kind of biological Internet, in which viruses travel like messages, moving at high speed from node to node, moving from city to city" (1995, p. 43), but the point of origin for these viruses is invariably located in the Third World, where it is represented in terms of "naturally" barbaric customs and lack of "development." The emphasis on "lifestyles" in industrial popular culture contributes to these racist ideologies. As Duster notes, the poor and workers lack "the combination of resources and will to just change their styles of life" and most live near subsistence and have "persistently poor health" (Duster, p. 114), but this fact is routinely ignored. In the case of the ebola epidemic in 1995, for example, absolutely no attention was paid to the political and economic context of Zaire in the *New York Times'* coverage, aside from a single sentence that notes in passing that precautions "are difficult to follow in a city where clean running water is scarce and soap may be an unaffordable luxury" (Davies, 1995, p. 5).

When economic conditions are mentioned at all, it is with regard to mostly Western health-care workers and emphasizes their inability to protect themselves. In fact, there is a great deal of evidence to suggest that epidemics only become epidemics in the Western media when white folks die. Disease is naturalized as a fundamental characteristic of Third World cultures. As journalist Michael Lemonick puts it, "Horrific tropical fevers are an unfortunate fact of life in Central Africa" (1995, p. 62). War, poverty, famine, and disease are seen as endogenous to the Third World, rather than a result of capitalist developmental policies.

This naturalization of poverty and immiseration in the Third World is most apparent in television programs about the ebola virus. So-called "primitive rituals" such as the preparation of the dead for burial are repeatedly presented as the cause for transmission in PBS's *Nova* episode on the epidemic, despite the fact that hospitals rather than cultural practices are widely acknowledged to be the vectors for transmission. *The Learning Channel's* special on "Killer Viruses" links the cause of the disease to diet, showing a Zairean man chewing happily on a rat (he is, in fact, smiling for the camera).

In the late 1940s and through the 1950s, during the period that Hobsbawm describes as the adolescence of global capitalism, the U.S. was largely insulated from the economic effects of the political agendas it was promoting throughout the world. As I have mentioned, the techno-optimism of the Cold War period was held in place by a very real sense of economic security. Today, that sense of economic security has disappeared, even for those more traditionally privileged segments of the labor force. One percent of the population currently owns sixty percent of assets in the U.S., 43 million jobs have been eliminated in the U.S. alone since 1979, there is an ongoing attack on workers, environmental regulations, and public institutions in general, and a populist candidate from the religious Right recently made isolationism the foundation of his platform. In this era of the adulthood of global capitalism, we are witnessing a massive reconsolidation of economic power at the upper tiers of the global economic order and an ever more unequal and unjust distribution of resources below.

Most capitalist economists agree that the current distribution of resources constitutes a crisis not seen in the U.S. since the Great Depression and that the middle classes live in ever deepening fear about the future. Historian Eric Kahler wrote in 1946 about the atom bomb, that "In a crisis, help has never come from fear, but only from calm and careful consideration" (in Boyer, p. 73). If nature is a metaphor for industrial capitalist production, we must consider the marketing of nature's revenge as ways of directing the anxieties people are experiencing. We need to understand the panic being engendered as part of a wider political and economic field with economic motives and ideological effects.

In terms of the economic situation, if the marketing of fear over who would control the harnessed nature of the Cold War provided the ideological legitimation for the military-industrial complex, the marketing of nature's revenge provides ideological legitimation for a growing biotechnological complex. According to McLauchlan and Hooks, "The legitimation crisis of the 1980s revealed a cold war technological era coming to an end (p. 765) and "A central issue is what the state will do with the science and technology infrastructure already in place" (p. 769). Although there have been no significant reductions in U.S. National Defense outlays in the past fifteen years, the emergence of large-scale biomedical projects like the Human Genome Project hints at the future. The U.S. government set aside 3 billion dollars to fund the project, while the combined research projects administered by the National Center for Human Genome Research have received an additional 200 million dollars per year (Van Dijck, p. 245). In addition, as Duster observes, "The twenty major biotechnology companies are shifting their research agendas towards a search for genetic markers for susceptibility to heart disease, diabetes, major cancers, and major mental illnesses" (p. 115).

It should go without saying that the logic that drives these research projects is based on profit --not human need. Take the continuing controversy over the bovine growth hormone used to stimulate milk production in dairy cows. There is no need for increased milk production--in fact, billions of dollars in the U.S. have been spent in keeping surplus milk off the market. Susan Wright asks, "Who needs bovine growth hormone? The answer seems to be the four leading corporations--American Cyanamid, Eli Lilly, Monsanto and Upjohn--that are promoting BGH worldwide" (1996, p. 20). The panic around emerging viruses, by positing nature as exacting revenge for man's technological excesses, thus ignores the fact that capitalism's production and specific application of technologies, not technologies themselves, are responsible for such problems.

Another, less visible aspect of the emerging biotechnological complex involves its links to the military. Wright notes, "After maintaining a low profile throughout the turbulent 1970s, the Defense Department quietly initiated military applications of biotechnology in the 1980s. Citing a menacing Soviet biotechnological warfare threat, the department embarked on efforts to use the new biotechnology" (p. 20). Although the Biological Weapons Convention banned the development, production and deployment of such weapons, the Chemical Weapons Convention allows development of riot control agents for domestic law enforcement. This year, Congress approved \$36 million for a new and secret "non-lethal" weapons program (Wright, p. 21). In typical military language, the term "non-lethal" refers euphemistically to an arsenal that, according to a research paper published in the Air Command and Staff College's *Airpower Journal*, would include: "disease organisms (nonfatal)," "arthropods (biting, disease transmitting)," "acoustic stun grenades," and "anti-riot agents (tear gas, mace, pepper sprays" (in Cassidy, 1996, p. 23).

Ideologically, the nature of this panic dovetails with the scapegoating of individuals in the U.S.--a narrative in which notions of social parasitism are being promoted through a logic of biological determinism all too congenial to the Human Genome Project's research agenda. According to Duster, "In the late twentieth century, the major battle lines are drawn around how much to direct health policies towards the behavior of individuals and how much to clean up the environment" (p. 115). The narrative of emerging viruses and the revenge of nature is constructed so as to slant the victory towards the behavior of individuals. *The Bell Curve* author Charles Murray claims that "welfare mothers come mainly from the lower reaches of the distribution of cognitive ability" (Pollitt, 1996, p. 58), researchers are doggedly seeking the gene that allegedly codes for criminal behavior, and an all too real resurgence in preventable diseases is blamed on individual, genetic propensities to disease.

This panic, understood both economically and ideologically, is directing already existing fears about the future toward individuals and specific populations. At stake is any sense of a public -- whether public health, public spaces, public trust, or public responsibility. The vast machinery of privatization is producing a narrative that is forcing individuals to view themselves as being increasingly isolated and under attack: from social parasites living on my tax dollars, to the hordes of criminals menacing my suburban home, to the viruses that travel from the jungles of Africa, Asia, and South America to my doorstep.

Notes

1 In terms of legitimate spokespersons for nature, in the past, nature was organized and legitimized around primarily religious ideologies. Floods, famines, disease, existing social inequalities, and divisions of wealth were explained through a largely Christian-eschatological framework: one that posited nature (and thus culture) as instruments of God's will and authorized religious institutions and their adherents to represent nature's actions and intentions. As feminist historians and philosophers of science like Rosalind Petchesky, Evelyn Fox Keller, and Sandra Harding have observed, from the late nineteenth century onward, nature has been increasingly understood not as a manifestation of God's will, but as a manifestation of the objective, rational prism of scientific knowledge. Haraway asks, "Who, within the myth of modernity, is less biased by competing interest or polluted by excessive closeness than the expert, especially the scientist? Indeed, even better than the lawyer, judge, or national legislator, the scientist is the perfect representative of nature, that is, of the permanently and constitutively speechless objective world" (1992, p. 312). There is an argument to be made for the ways in which ideologies of objectivity and rationality enable scientists to pursue their research with the illusion of distance from both the economic and political implications of their work. How else can we explain experiments carried out at the University of Rochester in 1945-47, in which physicians injected otherwise healthy people with radioactive materials without their knowledge or consent? For the purposes of this paper, however, I am more interested in the translation of complicated scientific understandings of nature in the mass media.

2 French sociologist Pierre Bourdieu has suggested that the ways in which information and ideas are classified is a powerful index to power and control and that, moreover, the ideology of scientific objectivity plays a central role in maintaining such power and control. Certainly the world views embedded in science are closely related to political and ideological views that serve specific economic interests. Academics as otherwise diverse as Eric Hobsbawm and Henry Krips have observed the connection between science and dominant ideologies. For example, although both Stalinism and German National Socialism used science for technological purposes, neither regime was comfortable with post-Einsteinian physics: "The Nazis rejected it as 'Jewish' and the Soviet ideologists as insufficiently 'materialist' in Lenin's sense of the word" (Hobsbawm, 1994, p. 532). In addition, "the Soviet regime, under Stalin, found itself at odds with genetics both for ideological reasons and because state policy was committed to the principle that, with sufficient effort, *any* change was achievable, whereas science pointed out that, in the field of evolution in general and agriculture in particular this was not the case" (Hobsbawm, p. 533). It is much easier to see such correspondences and dissonances at work in political regimes dissimilar to U.S.-style capitalism, particularly when those regimes have either produced monstrous results or have failed (in which case, their uses of science and technology can be dismissed as "bad science"). Nevertheless, it is difficult to deny the fact that physics in the U.S., not necessarily as understood by scientists themselves, but as organized by and within industrial popular culture, provided the organizational framework through which both nature and culture were understood during the post-war years -- one need look no further than terms like "the Atomic Age," "the nuclear family," "the Nuclear Era," or the increasing application of scientific knowledge to all areas of social life to make this connection.

3 A brief glance at early television propaganda programs illustrates this point. Programs like

"Marshall Plan in Action" (1950-53, ABC) contained government documentary films introduced by Federal Administrator Paul G. Hoffman. At the beginning of each program, Hoffman introduced the films as being parts of "the story of once successful battle in the series of struggles now going on that have become known as the Cold War." In 1951, the name of the program was changed to "Strength for a Free World." "Visit with the Armed Forces" (1950-51, DUM) also featured documentary films, while "Pentagon" (1951-52, ABC) served up a nightly dose of interviews between top Pentagon brass and reporters about the Korean War.

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