The Re-Vision of Planet Earth: Space Flight and Environmentalism in Postmodern America

William Bryant

> He leaned forward with his elbows on the sill of the aperture and looked. He saw perfect blackness and, floating in the centre of it, seemingly an arm's length away, a bright disk about the size of a half-crown. Most of its surface was featureless, shining silver; towards the bottom markings appeared, and below them a white cap, just as he had seen the polar caps in astronomical photographs of Mars. He wondered for a moment if it was Mars he was looking at; then, as his eyes took in the markings better, he recognized what they were—Northern Europe and a piece of North America. They were upside down with the North Pole at the bottom of the picture and this somehow shocked him. But it was Earth he was seeing—even, perhaps, England, though the picture shook a little and his eyes were quickly getting tired, and he could not be certain that he was not imagining it. It was all there in that little disk—London, Athens, Jerusalem, Shakespeare. There everyone had lived and everything had happened; and there, presumably, his pack was still lying in the porch of an empty house near Sterk.
>
> "Yes," he said dully to the *sorn*. "That is my world." It was the bleakest moment in all his travels.
>
> C. S. Lewis,
> *Out of the Silent Planet*[1]

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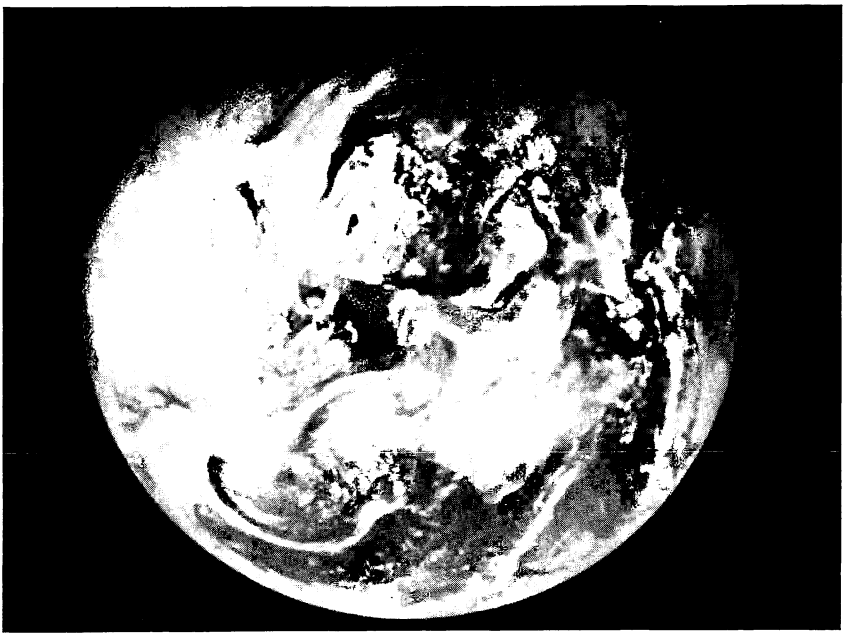
The picture of Earth from outer space has been both enlightening and disturbing. Lewis's protagonist, Ransom, kidnapped by fellow Earthlings and stolen away to the planet Malacandra (what we call Mars), had no idea where he was in relation to his home until a resident Malacandrian presented him with a view of the Silent Planet—which turned out to be Earth. Ransom was shocked and disoriented in the face of the image. He had never before seen his world from that vantage—as a disk in space—and, poignantly, amusingly, had never considered that from space it might as easily appear upside-down as rightside-up. The mental framework within which Ransom had to that point conceptualized the Earth was dismantled by his new perspective. His means of orientation, the tools of direction he used so reliably on Earth, had been revealed as only a convenient mental construct with no real grounding in the "true" nature of his planet. And incredibly, there, compressed on "that little disk" was all history, all geography, all human art and religion, industry and accomplishment—the enormity and totality of human existence. "There everyone had lived and everything had happened." Even the markings of his own mundane existence were etched somewhere on that disk. But from the vastness of space, it didn't amount to much. Ransom got a look at Earth from the outside, and the moment of encounter for him was "bleak."

In 1966, less than thirty years after Lewis wrote his tale of kidnapping and Ransom, Americans and other Earthlings began to receive images of their planet from outer space, thanks to the United States manned space program. Like the image in the *sorn's* strange telescope, the National Aeronautics and Space Administration's photos showed the Earth as a shining disk alone on a blanket of perfect blackness. This image has since been endlessly reproduced, mostly through the medium of advertising, to the point where today the act of conjuring up a mental picture of the Earth not informed or mediated by NASA's image can be accomplished perhaps only by a Malacandrian.

The possibility of viewing the Earth from space excited hopes and speculation even before the earliest days of space exploration. In 1948 British astrophysicist Fred Hoyle had predicted that "once a photograph of the Earth, taken from the outside, is available, we shall, in an emotional sense, acquire an additional dimension. . . once let the shear isolation of the Earth become plain to every man whatever his nationality or creed, and a new idea as powerful as any in history will be let loose."[2] Indeed, a powerful idea—or rather, ideology—did come to associate itself with this new image of the Earth during the 1960s. This was the ideology of the budding environmental movement, encompassing not just the social/political activists but everyone with a growing sense of ecological consciousness. Translated by environmentalists, the NASA photos represented not just a view of the world but a world-view—one in which humanity was destined to destroy the Earth and itself unless it mended its ecologically unsustainable ways and found common ground for working and living together on a frail and



The earth as "a shining disk alone on a blanket of perfect blackness." Courtesy of NASA.

finite planet. The environmentalists attempted a re-vision of the Earth, appropriating the image from outer space as a means for changing the way people visualized the planet and thus conceptualized their relationship with it. In contrast, adherents of what we might call the "progressive" vision saw in the image of Earth further compelling evidence that "man" was destined forever to explore and conquer nature in an evolutionary journey toward an ever more exalted state of humanness. The "progressives" I refer to in this essay, including writers, scientists, bureaucrats, and others, seemed to subscribe to an Enlightenment-inspired faith in the "progress" of humanity and to find its expression in space exploration.[3]

The image of Earth from outer space can be read as a site of contest between the environmentalist and progressive ideologies. Through the image, both environmentalists and progressives sought to advance their vision of the Earth and thus help legitimate their social/political/cultural agendas and ultimately themselves. Ironically, the progressives included adherents of the complex of bureaucratic, military, scientific, and technological systems responsible for both the manned space program that produced the image and, from the environmentalists' perspective, the environmental degradation that made their movement necessary. Both groups had an interest in advancing a dominant conception of the relationship between people and the planet at a juncture in America's cultural

history when the nature of that relationship seemed increasingly unstable and thus open to transformation.

The most puzzling thing about American environmentalism — in fact, the question that brings me to the topic of the re-visioned Earth—is why it has not been more successful in achieving its goals. In one sense, environmentalism did triumph over the progressive ideology. Humankind's heroic leap into space, for all its giganticism in the 1960s, limped to a halt in the early 1970s, whereas the coincident, emergent ecological consciousness took root and bloomed into a significant cultural presence. Certainly, by 1990, when 76 percent of adult Americans identified themselves as environmentalists,[4] there was no equal percentage in the progressive camp urging "man" (read: Americans) toward further and farther celestial exploits, particularly in light of the Challenger disaster. It may even be that the appeal of the environmentalist world-view contributed directly to the termination of the space program in its Apollo configuration and so muted the ideological conquest of nature as represented by the moon landings. Indeed, with the advent of the shuttle system, the country's endeavors in space might be said to have absorbed the environmentalist dictum of reduce, reuse, and recycle.

In the decades following the 1960s the environment came to the fore on the nation's political and social agenda. Government created a host of federal and state agencies and passed legislation to deal with pollution, protect wildlife, preserve wilderness, and safeguard workers. Large national organizations, commanding resources, power, and influence, were founded or strengthened, and countless grassroots groups came to life. The environmental movement's first great popular expression, Earth Day 1970, elicited the participation of 20 million Americans in campus teach-ins, demonstrations, and other activities designed to raise the profile of environmental concern. In contrast, 200 million people worldwide participated in Earth Day 1990, making it the largest event organized around a single cause in history.[5] Yet, organizer Denis Hays wrote in 1990, "Twenty years after Earth Day 1970, those of us who set out to change the world are poised on the threshold of utter failure. Measured on virtually any scale, the world is in worse shape today than it was 20 years ago."[6] Scientist, environmental activist, and former presidential candidate Barry Commoner said in 1990, "It's not simply the environmental movement that has failed. The approach strategy taken by the EPA and all of the state environmental regulatory groups has been wrong. It hasn't worked. As a result, there's been very little improvement in the environment, and certain things have gotten worse."[7]

Despite the astounding participation in Earth Day 1990, many environmentalists saw little to celebrate. To be sure, an incessant pessimism had become an integral part of the environmentalist discourse, a strategy for maintaining the urgency and necessity of environmental agendas, but the measurable, observable environmental deterioration grounding the strategic claims was difficult to refute. "Since 1970," says business writer Paul Hawken, "the United States has spent over $1 trillion to monitor, litigate, contain, and curb pollution and hazardous

waste. Despite that, the environment is more polluted today than it was two decades ago. . . We would be worse off today were it not for the $1 trillion expenditure, but in sum, we are worse off than when we started."[8]

The environmental movement had converted America into a nation of environmentalists, yet had failed to effect any meaningful improvement in the environment. An understanding of how this could happen lies partly in the movement's reconceptualization of the human/nature relationship. The new terms of that relationship were crystallized in the image of Earth from space.

Re-visioning Earth through its image was not solely the province of either environmentalists or progressives, however. As much as it was a site of conflict, the image of Earth was also a point of confluence, in which the two perspectives revealed their similarities. It is in these similarities, and in the image itself, that a third perspective emerges, one in which the image of Earth from outer space evinces the onset of the postmodern and the operation of consumer capitalism. From this third perspective, which takes into account the apparent practical failure of both ideologies, neither the environmentalists nor the progressives were successful in appropriating the image of the Earth to suit their ends. Rather, the efforts of both were subverted and superseded by the cultural formation of postmodernity. The image defied attempts to fix it within either structure of ideological meanings and served, in the end, as a conduit for the "expansion of capital into hitherto uncommodified areas."[9] As a result, a re-vision of the Earth did take place following NASA's historic photo opportunity, but not the one the environmentalists intended.

Reach for the Stars or Return to Earth?

The image of the Earth from outer space cannot properly be disassociated from the historical political/cultural/social circumstances among which it came into the world—its conditions of production and consumption. The space flights that generated the new view took place in a time of war and social protest, in an age of the mass-mediated primacy of science and technology, in an era of decolonization and neocolonialism, under the perceived threat of nuclear and/or ecological destruction, and amid the condition of postmodernity and the operations of multinational, consumer capitalism. Understandably, in a time of such flux there was little consensus about what landing on the moon and gaining a new perspective on the Earth might mean, but most responses to the space program either characterized it as a victory for science, humankind, or America, or criticized it as an unconscionable squandering of effort and resources in the face of pervasive terrestrial problems such as poverty and war.

In his book *Seeing Earth,* Ronald Weber classifies two basic literary responses to space exploration: one, the "outward" response, corresponds roughly to what I have identified as the progressive world-view; the other, "inward" or "return-to-Earth" response reflects the environmentalist perspective.[10] The out-

ward response, Weber says, treated "space exploration as a liberating leap into a mysterious future, an adventuresome launch onto a new ocean, a great opening-out of the mind and spirit." This view, expressed by writers such as Ray Bradbury and James Michener, historian Daniel Boorstin, and scientists Carl Sagan and Wernher von Braun, was overlaid with the imagery of unlimited and inevitable progress. Its sense of national destiny, easily transmuted into "human" destiny, was cloaked in romanticism, nostalgia for the "frontier," the unknown, and the past ages of exploration. As Michener wrote, space exploration is "the specific challenge of our age."[11] To meet that challenge, to pursue "the infinite promise of... man's unfulfilled possibilities...," according to Boorstin, "[w]e must keep alive the exploring spirit."[12]

From the perspective of the outward response, the image of Earth from outer space was a look backward. It was like a cinematic last glance at one's childhood home at the moment of departure into the great world beyond—affectionate, sentimental, but ultimately dismissive. In this view, humans had outgrown the Earth. It appeared small, tired, conquered, used-up, and unpromising of further challenge. Equipped with the tools of science, "we no longer need to see ourselves, in Sagan's words, as 'restricted to a single world' but as inhabitants of the solar system and possessed of a solar-system consciousness."[13]

The literary response documented by Weber was ostensibly shared by the people and institutions behind the manned space program. In fact, the spirit of exploration and the quest for knowledge that characterized the progressive ideology of the outward perspective were deliberately set forth as justifications for the space program at its inception. According to Michael L. Smith, however, these justifications represented only the "candy coating" around the real motivations behind the enormous project, namely, national power and prestige.[14] "The overwhelming concern—the only substantive concern—of the political leaders, military strategists, and aerospace engineers and scientists who implemented the manned space program, " writes Smith, "was its propaganda value, abroad and at home." Following a highly technologized war, punctuated by the explosion of atomic bombs, political and military leaders around the globe became convinced that power and security in the post-war world would accrue to the nation that could demonstrate scientific and technological superiority. With the Soviet launching of the first ICBM and later Sputnik — compounded by the launchpad explosion of the United States' first satellite rocket—American leaders of the late 1950s grew insecure about the nation's ability to compete with the Soviets and began to perceive this putative loss of technological ground in terms of a lack of "national purpose." The manned space program, according to Smith, was initiated to address these perceived inadequacies, to engage in the technological race with the Soviets and to give the nation "if not purpose, then the *image* of purposefulness." But even more than this, in the contest for global prestige, it was important for the U. S. to couch its space program in terms of benevolent exploration rather than a power struggle, thereby "lending the nation the appearance of a self-assured, mature state seeking knowledge for all humanity among

the stars." The noble aims and fulfillment of destiny attributed to the manned space program by subscribers to the outward perspective, then, may have been largely manufactured, or at least exploited, for strategic or, as Smith would put it, "display" purposes designed to mask geopolitical posturing.

The view of Earth from space also prompted an alternative response. Some saw the space program's greatest accomplishment not in the romantic, evolutionary leap of humankind beyond the confines of Earth, nor in the calculated acquisition of national power and prestige, but in the view it provided of the planet from outer space. "Looking back on that period," wrote Theodore M. Hesburgh, "it seems to me that the greatest result was not so much landing men on the moon and bringing them back safely to earth. It was not even the close-up look at the moon and the excitement that attended this view. Rather for me the most significant fact of the whole series of events was the look at the earth from afar, in fact, from the moon. There we saw our earth for the first time in human history. . ."[15] Likewise, Norman Cousins wrote that "the most significant achievement of that lunar voyage was not that man set foot on the Moon, but that he set eyes on the Earth."[16] This perspective constitutes what Weber identifies as the inward or return-to Earth response. In it, "the new feeling for earth brought about by space exploration was more compelling than eager anticipation of the plunge into the unknown; rather than freeing ourselves from bondage to earth, space exploration returned us to the planet with fresh eyes for its beauty and new appreciation of its sensual reality."

From this perspective, the U.S. manned space program became the world's most elaborate camera, invented and set up for the sake of the images it could produce. As the biophysicist John Platt said, "That great picture of Earth taken from the moon is one of the most powerful images in the minds of men today and may be worth the cost of the whole Apollo project. It is changing our relationship to the Earth and to each other."[17]

This changed relationship was precisely the goal of the environmental movement and the reason the picture of the whole Earth became so important to it. Framed in environmentalist terms, the image of Earth from outer space showed the planet in all its "sensual reality" as beautiful, frail, and vulnerable to the depredations of avaricious industry and technology. Further, the image emphasized the common origins, conditions, and fate of people all over the planet. For the first time, one could look at the place where "everyone had lived and everything had happened." As poet Archibald MacLeish put it, "to see the Earth as it truly is. . . is to see ourselves as riders on the Earth together."[18] In the environmentalist ideology, care taken in the way humans interacted with the Earth was paramount to the survival of the entire species.

One powerful mechanism for merging these desired sensibilities—of an awareness of the sensual reality of the planet on the one hand, and a universal notion of humankind on the other—was through the metaphor Spaceship Earth. This metaphor, employed as a tool in the popularization of ecological conscious-

ness, was emblematic of the environmentalists' radically reconstituted human/nature relationship, but ultimately worked against that relationship by advancing a discourse on the environment which undermined its radical potential.

Spaceship Earth

American concern for the environment has a long pedigree. Historians typically trace its roots through the Romantics, to Thoreau, to the preservationist/conservationist debates embodied in Muir and Pinchot, and on to Aldo Leopold and the ascendancy of the science of ecology. Environmentalism as it is known today began to take shape throughout the 1960s, marked by Rachael Carson's *Silent Spring,* the passage of various federal acts addressing pollution control and wilderness preservation, the birth and growth of a variety of environmental organizations, and ecological incidents such as the Storm King litigation and the Santa Barbara oil spill.[19] From among this nascent swirl of ecological consciousness in the 1960s emerged a dominant discourse on the environment—that is, a set of procedures for communicating that enabled and constrained the definition and presentation of environmental issues, that shaped and legitimated the voice of authority on the environment, and that created the conditions that made possible a certain conception of the relationship between humans and the rest of creation. This discourse was advanced by environmental activists and organizations through media such as Earth Day 1970, which was designed to throw the spotlight on environmental problems, consolidate environmentalist thinking, and galvanize the public into action.

Though informed by the long history of American conservationism, the environmental movement as it emerged in the 1960s was of a piece with a host of other calls for radical change.[20] The anti-war movement, the civil rights movement, the various demands of the New Left, a new mysticism, a new sociosexual politics all interacted with a budding effort to build a new relationship with the natural world. Some saw in the ecology movement the potential to unify all calls for social justice under one banner: the complex of economic, industrial, bureaucratic, and military systems responsible for racism, poverty, blighted cities, the militarization of the nation, and the war in Indochina were also responsible for making the planet progressively uninhabitable. The environment provided a rationale for everyone, regardless of class, race, or even ideology, to work toward reforming American society. Others saw in the ecology movement a dangerous, even sinister potential to divert the attention and efforts of the radical left away from the busy task of obliterating capitalism toward the more benign work of ridding the streets of trash.

Environmental leaders sought to build a broad-based movement. Their challenge was to reconcile a new and radical ecology movement with a wider segment of America that was more conservative but nonetheless increasingly concerned about environmental problems. As Earth Day 1970 organizers put it, the goal was to forge a "bizarre alliance that spans the ideological spectrum from

campus militants to middle America."[21] The discourse that accomplished this conciliation—through conceptualizing a beautiful, frail, and vulnerable planet inhabited by a unified humanity—made full use of the image of Earth from outer space. Margaret Mead told an Earth Day crowd in 1970, "I think that the tenderness that lies in seeing the Earth as small and lonely and blue is probably one of the most valuable things that we have now. . ."[22] According to scientist William K. Hartmann, "It is no coincidence that the first 'Earth Day,' in 1970, came soon after these [NASA] pictures became available."[23]

Inevitably the image of the Earth and the image of the spaceship that brought the image of the Earth were conflated. Buckminster Fuller claimed to have invented the metaphor Spaceship Earth in 1951,[24] but Adlai Stevenson may have been the first to use it to good effect publicly, perhaps because, in 1965, his public was ready for it. In his final address to the Economic and Social Council of the U.N., Stevenson said, "We travel together, passengers on a little space ship, dependent on its vulnerable reserve of air and soil; all committed for our safety to its security and peace; preserved from annihilation only by the care, the work, and I will say, the love we give our fragile craft."[25] Subsequently, economist Barbara Ward titled a book, *Spaceship Earth*, in which she stated, "Modern science and technology have created so close a network of communications, transport, economic interdependence—and potential nuclear destruction—that planet Earth, on its journey through infinity, has acquired the intimacy, the fellowship, and the vulnerability of a spaceship."[26] A few years later, Fuller wrote his *Operating Manual for Spaceship Earth*, premised on the idea that humankind had taken command of the craft but had no instructions for running it.

The image of the Earth in space, coupled with the metaphor of Earth as a spaceship, became a pervasive and powerful symbol for the early environmental movement. It effectively served the movement's dual, potentially competing objectives: to maintain the momentum for radical change while avoiding polarization. As an ecological model, Spaceship Earth implied limited resources, limits to growth, and a need to reorder the basic relations of Western civilization—in effect, a call for radical change. Economist Kenneth Boulding proposed replacing the existing, unsustainable "cowboy economy," destined eventually to destroy the world, with an Earth-friendly "spaceman economy," in which both consumption and production would be considered "bad things" to be minimized.[27] In complement to this radical side of Spaceship Earth was the unifying sense of fragility and tenderness Stevenson and Mead spoke of.

At one level, using the spaceship metaphor to make an ecological point during the first full blush of the space age might be seen as an instance of principled opportunism, as an attempt to turn the goals of the militaristic, technocratic state back upon themselves, or at the minimum to hit upon a familiar cultural chord to which a large audience might resonate. But no one making the ecological point ever seemed to acknowledge the deep irony in enlisting the help of an image that was itself the product of the very complex of economic,

Earth Day flag at the Capitol in Washington, D. C. Photo copyright by Earl Dotter.

bureaucratic, military, and technological systems they held responsible for the destruction of the environment. The scientist J. Baird Callicott wrote, without irony, "More than any other single phenomenon, those photographs of a soft, lake-blue planet, coyly swirled about with flouncy clouds, floating in empty space—with the utter desolation of the moonscape in the foreground—precipitated the ecological and environmental decade that immediately followed," as though the image itself set off the environmental activism of the 1970s without the help of the environmental havoc left in the wake of all that went into getting a camera on the moon in the first place.[28]

In missing the irony inherent in Spaceship Earth, environmentalists rendered the metaphor self-defeating. To make a value judgment about the Earth, based on photographs from space, one had to make an abstraction of it, to dismiss the specifics of history and context. Not visible from space is the evidence of the real human/human and human/nature relationships transpiring on the surface of the planet, including not only the evil works of people perpetrated upon nature and upon themselves, but also the non-nurturing, non-life-supporting earthquakes, tornadoes, and floods that the Earth perpetrates upon people.

Seen from outer space, the Earth "as it truly is" is not a site of human contestation. Spaceship Earth was an abstraction and reduction of the planet, which worked against the promise of a radically reconstituted human/nature relationship by dissolving context and history and leaving no concrete reality in which to build a politics. As Eric Sevareid said in his Earth Day 1970 broadcast on CBS News, "We are now dealing with final facts, the chemistry and physics of plant and animal existence, not with the metaphysics of freedom, justice, equality or the other elastic elements in human happiness."[29] By Earth Day 1990 the icon of the globe, which 20 years earlier had adorned posters and T-shirts in all its photographic detail, had evolved into a primitivistic drawing, a further abstraction.

In contrast to its predecessor, Earth Day 1990 was notable for the absence of any call to reformulate the basic economic, technological, scientific, and bureaucratic relations of society. Rather, it commanded the environmentally concerned to "think globally" and "act locally," and so bypass the intermediary web of institutions. In 1990, responsibility for changing the world rested not on the institution but on the individual, who by recycling and planting trees could somehow remedy the damage caused by the unmolested industry, bureaucratic largess, and technological overkill that was the focus of rhetorical attack in 1970.

Apart from the irony behind the spaceship metaphor, there was also the issue of the metaphor itself. In the logic of Spaceship Earth, spaceships seem more Earth-like, perhaps more naturalized and less artificial. At the same time, Earth becomes more like a spaceship—that is, more like a product of human technology, to be operated and even fixed by humans armed with the proper manual. Further, the main purpose of its existence is to carry humans about and provide for their needs. Effectively, the Earth is seen as the instrument of humankind.

Of course, to a large extent, post-Enlightenment Western civilization has always seen the Earth as an instrument. What the ecological model added to this conception was a sense of the instrument's limitations, its maintenance requirements, and its capacity to break down. It implied the need for engineering, for the kind of technological fixes that have been the focus of environmental legislation since the 1960s. The Clean Air and Clean Water Acts that were passed in the years immediately following Earth Day 1970, for instance, did not outlaw pollution by stopping it at its source; rather, they launched an entire industry aimed at inventing abatement devices. Scientist George Wald warned an Earth Day 1970 crowd against letting "antipollution become our new multibillion-dollar business; to let the pollution go on merrily in all its present forms, and superimpose a new multibillion-dollar business of antipollution on top of it."[30] In the updated Clean Air Act of 1990, not only industry and technology, but the market itself was employed to address pollution, through tradable vouchers.

This is not to say that the environmentally concerned individuals who first employed the metaphor of Spaceship Earth ever intended to undermine the radical potential of the ecology movement. Rather, they were no doubt confident in the metaphor's ability to help effect meaningful change. Nor is this to say that the metaphor itself somehow created the conditions whereby the environment would be depoliticized through abstraction and environmentalism would proffer an instrumentalist human/nature relationship. The metaphor shows the evidence of a discourse that simultaneously mobilized a public and contained it, a containment that has contributed to the failure of the social practice of environmentalism.

The dominant environmentalist ideology that emerged from the 1960s shared the discursive procedures of abstraction and instrumentalism with its progressive foil. These procedures were embedded in the discourses proffered by both ideologies, specifically apparent in their seemingly antithetical applications of the metaphor Spaceship Earth: for a progressive like Buckminster Fuller, the spaceship was "extraordinarily well invented and designed for the continuing success of the human race;"[31] for the environmentalist Garrett Hardin, the significance of the metaphor lay in its ability to relay "the inescapable truth that. . . the Earth is truly finite. . .a very little thing in an immensity of space," about which the decisions "we" make determine "our" chances for survival.[32] John Woodcock calls this environmentalist take on the metaphor an "organic model" of Spaceship Earth, but in fact spaceships are necessarily feats of mechanical engineering. To see the Earth as a spaceship is to see it as a machine, and to treat it as such.

For all their polarity, the environmentalist and progressive constructions of the human/nature relationship shared another characteristic as well: a discourse of "survival" requiring a universalization (or, perhaps more appropriately, globalization) of all human beings into a single type. One way to look at this characteristic is as a narrative element bearing the "truths" charged with validating both story and storyteller.

Survival

By most accounts Rachael Carson's *Silent Spring* helped usher in the age of ecological consciousness. Her book traced the deleterious effects of toxins released in one corner of the environment as they reverberate through the entire web of ecological systems. It is a work informed by the science of ecology and infused with fear and apocalyptic vision. As Carson quoted Dr. David Price of the United States Public Health Service: "We all live under the haunting fear that something may corrupt the environment to the point where man joins the dinosaurs as an obsolete form of life."[33] The book's prologue, "A Fable for Tomorrow," is a fictional scenario, told in the past tense, depicting a once-pastoral American community that has poisoned itself with chemicals. This fable establishes a narrative structure that became the convention of environmental storytelling: a bucolic past in which humans lived harmoniously in nature, the invasion of technological over-development, the threatened extinction of both humans and nature. It is an admonitory tale designed to incite political/social concern and action.

Paul Ehrlich, author of *The Population Bomb*, has frequently used this narrative structure to communicate the seriousness and urgency of impending ecological disaster. In his essay "Eco-Catastrophe!" written in 1969, Ehrlich provided a fictional account of the state of the world ten years in the future, a world of misery and terror enveloped by environmental and political chaos—a world which could be avoided only through the implementation of extreme and immediate measures to control the growth of human population.[34] In such narratives, survival of the species depends upon a drastic alteration in the way humans relate to their environment.

The re-visioned Earth posited by the environmentalists was suffused with this discourse of survival. A pervasive nervousness about the fate of humanity seemed to issue naturally from the nuclear culture within which the U.S. manned space program, the image of the Earth from outer space and the environmental movement itself came into being. Adlai Stevenson's application of the spaceship metaphor before the United Nations invoked both the environmental and nuclear dangers threatening humankind. Likewise, Barbara Ward identified "potential nuclear destruction" as one of the factors giving Earth the "intimacy and vulnerability of a spaceship." The characterization of Earth as frail and vulnerable automatically implied these nuclear and environmental threats. In an important sense, nuclear annihilation represented nothing so much as the ultimate ecological catastrophe.

The progressives, too, employed a discourse of survival to frame their vision of the new human/nature relationship forged by space exploration. For the progressives, the import of this technological feat took on its greatest meaning within the context of species adaptability. Obviously, the frail, used-up Earth was not going to last forever. "So in order to insure the entire race existing a million

years from today, a billion years from today," said Ray Bradbury, "we're going to take our seed out into space and we're going to plant it on other worlds."[35] For Wernher von Braun the "ultimate historic meaning" of the moon landing was, "[i]mmortality—not for the individual but for the species or even for the spark of life itself in our corner of the universe. . ."[36]

Though originating from different directions, the stories told by both the environmentalists and the progressives were essentially Hegelian narratives aimed at a common point in the future, when "man," "humanity," "the race," "the species," is liberated from the threat of extinction. The discourse of survival drove these narratives; it was the telos which justified the telling of the stories and authorized both the tellers and their practical prescriptions. To function properly within the narratives, however, the discourse of survival required a unified humankind typed into an abstract, seemingly classless, raceless, genderless totality. Such a move was facilitated by a view of Earth from a perspective so distant that a real human presence could only be projected onto it by an act of imagination, and then only in a diffuse, generic form. From such a view, all people shared a common origin, existed under common conditions, and were fated to a common future—which reduced on the flat disk in space into a kind of eternally present state of "being on Earth."

According to Donna Haraway, this generic, global "man" was grounded in the science and politics of post-World War II Western culture.[37] Following the rise and dire consequences of fascism, racial and national differences ceased to be acceptable typologies for an understanding of "man." Peace and security—indeed, survival—after Hiroshima, in the Cold War era, in the face of decolonization, depended on the discovery of human commonalties, on the construction of "the united family of man," a concept issuing directly from the United Nations. The U.N.'s 1948 Universal Declaration of Human Rights, and the United Nations Educational, Scientific, and Cultural Organization's 1950 and 1951 statements on race, Haraway writes, "attempted to build into the founding documents of a post-World War II international order" a "narrative of scientific humanism" that would unify humanity's sense of itself. In response, the scientific community, particularly the fields of physical anthropology and biology, endeavored to construct from newly discovered fossils of early man an original human "family," whose essence lay in cooperation rather than competition—a story that seems to parallel the "display" narrative of the U.S. manned space program. "[B]iological studies lend support to the ethic of universal brotherhood," concluded the 1950 UNESCO statement, "for man is born with drives toward cooperation, and unless these drives are satisfied, man and nations alike will fall." Created by science as a "natural-technical object of knowledge," universal man was thus "biologically certified for equality and rights to full citizenship."

This post-World War II universal man, says Haraway, was "launched into the future and unearthed from the past." From the progressive perspective, the astronauts in their bold mission beyond the confines of Earth *were* universal man;

for the environmentalist, the picture of Earth from outer space was a self-portrait of him. In some ways the construction of universal man succeeded in redressing racists (though not sexist, as Haraway points out) conceptions of "man." By the 1960s, the concept was a mainstay of liberal ideology, justifying in a new way the use of a universal "we" to describe the generic state of human affairs. But as Jean-François Lyotard argues, use of the universal "we" can be a kind of cultural imperialism, denying the specificity of history, colonizing difference, and masking responsibility.[38] With the American flag planted on the moon there would seem to be little doubt about the neo-colonial intentions behind the space program, but environmentalist ideology also advanced a kind of neocolonialism. Anxieties about separation from nature, owing to a perception of technology run amok, permeated the environmentalist discourse. But to whom did these anxieties belong? As Haraway argues, "It is [European and Euro-American "generic" man] who has been excluded from nature. . .he is being thrown out of the garden by decolonization and perhaps off the planet by its destruction in ecological devastation and nuclear holocaust." It was not the Third World that needed to reconnect with the natural environment, that needed a reconstituted human/nature relationship via a re-visioned Earth, but technological, Western, scientific man, who seemed able to stave off his ultimate expulsion from the garden only by re-colonizing the planet as a whole, by turning it into a mirror image of himself.

The discourse of survival was not about survival for its own sake. Rather, it directed both the environmentalist and progressive narratives toward some resolution of events that would leave universal man in a happier, more secure state. The hurdle set before universal man from both perspectives was the looming decadence of his natural environment. The teleology of the progressives was obvious: universal man could escape decadence via the "great opening-out of the mind and spirit" afforded by space exploration; he could ensure the perpetuation of his species by depositing his seed upon unknown worlds. But the environmentalist story, too, was guided by a metanarrative of progress. The re-visioned Earth implied the avoidance of complete, self-inflicted decadence, a move toward maturity, and then perhaps toward salvation. The mind and spirit of universal man opened out upon the planet itself by way of his reconstituted relationship with it.

In as much as science authorized the claims of both the environmentalist and progressive narratives—in the form of ecology in one case and aeronautics in the other—science also furnished the governing teleological metanarrative. According to Lyotard, such a metanarrative historically legitimated the social practice of science by implicating the essential role of "objective" knowledge in the story of humankind's evolutionary struggle toward political emancipation and self-conscious mind. Such knowledge for the environmentalists meant seeing the Earth *as it truly is,* and understanding it in ecological terms. The progressives offered scientific knowledge as one of the primary justifications for space

exploration. But, according to Lyotard, the power of this metanarrative to legitimate, justify, and regulate science began to wane after World War II.[39] Aspirations to "truth" that would lead slowly but inevitably to "man's" absolute freedom and absolute knowledge progressively became aspirations to "performativity," wherein research, for instance, would be justified not by its production of knowledge but by its reproduction of itself. Science, unmoored from any external guiding principles, sought only to perpetuate itself as the performance of science.

Such a reading is borne out in the science of the manned space program. As Smith illustrates, the objective of greater scientific knowledge set forth as a justification for the program by the scientists and political and military leaders who initiated it was "candy coating" for the real motivations of national power and prestige. In fact, not much knowledge or even economic benefit was gained from the lunar missions. As Tom Wolfe remarked, "the moon was in economic terms pretty much what it looked like from Earth, a gray rock."[40] In light of the general lack of certainty about what the Apollo mission's objectives really were, Smith notes a resultant post-landing scramble to paint the astronauts as modern-day Columbuses, returning from the new world with riches such as Teflon and improved electrocardiographs, "as if the way to develop a better electrocardiograph were to send men to the moon." The moon shot, according to Lewis Mumford, represented "an extravagant feat of technological exhibitionism." "[S]pace technics," he wrote, "offer a new type of non-existence: that of the fastest possible locomotion in a uniform environment, under uniform conditions, to an equally undistinguishable uniform destination."[41] This was science/technology, or "commodity scientism," as Smith calls it, for its own sake, governed only by its facility at performing itself.

Environmentalism also found its value in performativity in the form of the mainstream practice that emerged from the 1960s. The radical potential of the early movement was neutralized by the procedures (such as abstraction and instrumentalism) of the dominant discourse on the environment, and the movement evolved into a professionalized, elitist institution, disjoined from the masses it had converted.[42] In its structure and modes of operation, environmentalism became completely compatible with the institutions it set out initially to undermine. Mainstream environmental organizations came to engage not in the activity of improving the condition of the environment but in the performance of environmentalism. Likewise, as consumer capitalism moved in to colonize new territory, build a "green" marketplace, and so inoculate itself against the disease of anti-consumption, the ecologically conscious individual was converted into the "green consumer," who did not have to practice environmentalism so much as *perform* it through "lifestyle" choices pivoting on the purchase of "Earth-friendly" products.

Re-Vision

Lyotard marks the decline of the metanarrative and the rise of performativity as characteristic of the pervasive cultural "condition" of postmodernity. In Fredric Jameson's schema, postmodernity and multinational/consumer capitalism have emerged together to displace modernity and corporate/monopoly capitalism.[43] Jameson ties this displacement, the ascendancy of postmodernity, to the emergent discourses of the 1960s, so it may not be surprising to see its evidence in the space exploration and environmentalism of that period. As a set of conditions of cultural production, postmodernity is typified by the primacy of the surface, which renders space, time, and experience "depthless," compressed into an intense present that decenters the individual as a subject. Material reality is ungraspable in any objective form, and instead is inscribed as "a set of texts or simulacra" upon mediating, self-referential surfaces. According to John D. Dorst, "A key characteristic of such surfaces is their automatic propagation, the seemingly mechanical operation through which they replicate their characteristics by drawing in, processing and reproducing as projected images potentially the whole world."[44]

In many ways, the image of Earth from outer space is the quintessential postmodern surface. In it, indeed the "whole world" is drawn in, processed, and reproduced as a projected image. The Earth as an object dematerializes into its image. We can see this movement in Ransom's encounter with the flat disk of the Silent Planet, wherein his prior, multi-dimensional experience of the world, steeped in geographical and historical meanings and conflicts, is transformed into "intensities" of the perpetual present of the image.[45] Everyone who has lived and everything that has happened, including the fact and circumstances of his own life, are flattened into complete equivalency, contemporaneity, and neutrality, and are reflected back to him in a form so diffuse and shallow that only ambiguously can they be said to be inscribed there at all. The cultural/mental constructs, the metanarratives, which to that point have oriented him in relation to space, time, and meaning (north, south, London, Athens, Jerusalem, Shakespeare), are rendered insubstantial and, finally, bleakly, inconsequential. Paradoxically, though he knows it is an image he is looking at, he understands that image—produced and framed for him by the mysterious technology of the *sorn*—to be the Earth *as it truly is.*

The image of Earth from outer space was a powerful re-visioning technology—self-referential in the ultimate, bearing the characteristics of, as Dorst says, "the postmodern hegemony of simulacra, of automatic mechanical reproduction, of glossy image and spectacle, all of which tend asymptotically toward a fully dematerialized world." To understand why the environmentalist re-vision of the Earth via its image from outer space failed in the context of postmodernity, it is helpful to look at the image in terms of a rhetorical form characteristic of postmodernity, which Dorst calls *veneer.*

In its usual meaning, *veneer* describes a layer of material superimposed upon an object, such as a table or wall, so as to improve its visual appeal and mask its true, usually inferior, quality. The postmodern veneer Dorst describes, however, involves the application of a surface, either literal or metaphorical, that is itself the image or idea of the underlying substance it conceals. The effect is not just to mask the underlying substance but to dematerialize it within the image of itself. It is the work of postmodern culture to produce and apply such surfaces.

To explore the image of Earth from outer space as veneer, we must break it down into its component parts. The photograph (or, nearly as often, the television screen) was the material substance of the veneer itself, the physical stratum upon which was projected the picture of the Earth. In other words, the physical stratum (photograph), plus the picture of Earth, constituted the veneer or surface. This surface was superimposed over the material planet, effectively "covering" the object Earth with an image of itself.

It should be emphasized here that the inscribed image of Earth under discussion did not represent Earth in all its possible contexts but from a particular, singular perspective. It depicted Earth only in a certain (albeit commanding) state of "Earthness"—that is, in its essence as planet, as "whole" Earth, in the context of its environment, i.e., space. The power of the image lay in this perspective and in the fact that it was achieved. The planet was the ostensible subject of the image, but the image first and foremost referred to itself, announcing itself continually as a spectacle, an amazing thing. The material Earth was caught up in this spectacle, became a spectacle itself, indivisible and indistinguishable from its image.

For the observer or consumer of the image, this perspective allowed a view of Earth in its "natural" state—its true essence as a planet. It provided a hypothetical view of what Earth looks like even when no one is up there to look at it. The image compelled the spectator to enter into and participate in this perspective, to perceive Earth in its "timeless" state through the impossible eyes of a floating "no one." The spectator, dislodged from time and space, ceased to be a discrete subject, a "physical locus of visual experience," in Dorst's phrase. In this dispersal or decentering of subjectivity, there was not the bleakness Lewis imagined Ransom to experience, but the depthless, giddy, vaguely nauseated euphoria, in Jameson's sense, that one might associate with the mood of the hysterical shopper, or the weightless detachment of an astronaut.

The dominance of postmodern hegemony, according to Dorst, is "almost entirely a matter of texts or images, of the rhetorical deployment of discourse practices." Veneer is one of that hegemony's rhetorical vehicles. It carries and distributes ideology in ways that have "the potential of penetrating more deeply and colonizing more completely every sphere of experience than those orders of dominance that require visible forces of coercion and external control to sustain themselves." What opportunity for penetration and colonization could be more complete than that presented by the "whole" Earth? By re-visioning the Earth, overlaying it with an image of itself, postmodern veneer deployed the ideology

of "globalization," which flattened the specificity of history and geography and reduced the diversity of humanity into a common "global" type existing in an eternally present state of "being on Earth." This process of complete reduction and simplification naturalized the global operations and control of resources by multinational corporations and displaced their responsibility for environmental degradation onto the individual, the "global citizen," and onto the Third World through mechanisms of neocolonialism. It expanded consumer capitalism into the "hitherto uncommodified area" of environmentalist consciousness by converting a nation of environmentalists into a nation of "green consumers" and concern over pollution into a pollution abatement industry. Finally, it protected itself from threats against its structures of production and consumption by transforming environmental practice into environmental performativity, a means by which the individual, made guilty for his or her part in destroying the environment, could atone through the consumption of "green" products.

Indicatively, the infiltration of consumer capitalism into environmental consciousness can be traced in at least one aspect directly to the NASA photos of Earth. Stewart Brand, founder of the *Whole Earth Catalog*, began lobbying space agency officials to publicly release their pictures of Earth in 1966.[46] By 1968 the image of Earth from space was the permanent logo and cover shot of his publication, a paradigm of the lifestyle choices marking environmentalist performativity. The efforts of environmentalists to fix the image of Earth from outer space within an ideological framework of their making and thereby reconstruct the human/nature relationship were sabotaged from the start by the structures and operations of the cultural formation within which they arose. Since the 1960s, the icon of the globe, which seemed to hold so much promise as the symbol of a new consciousness, has been an icon of advertising, incongruously effective at selling cosmetics, cars, insurance, beer, and any number of other consumer products in addition to the "green" and "back-to-Earth" products and signs of the *Whole Earth* milieu. The ritual of Earth Day, which began in 1970 as a demonstration against "Pollution. Overpopulation. Overkill. Slums. Racism. Wasted resources. Planned obsolescence. A widening war,"[47] by 1990 was characterized as a "corporate feeding frenzy."[48] The image of the Earth from outer space was harnessed by the environmentalist ideology but put into service by the economic system attendant to postmodernity.

The romantic, as opposed to the cynical, progressives faired even worse than the environmentalists. Their aspirations for the advancement of human mind and spirit through space exploration were dampened by 1972, the year of the final Apollo flight. What mattered in the end was not knowledge and exploration, nor even national power and prestige, but rather the commodification of the planet. "Man" had gone exploring one last time only to discover that the Earth was indeed flat after all.

In the face of this litany of defeats there is one last operation of the flat surface of the postmodern veneer that bears explication. "Veneer is a framed surface,"

says Dorst, "that depends upon at least a minimal sense that something lies outside or beyond the frame. . . a concrete history, material processes of production, specificity of place, and so on." This something that lies outside the frame is a "prior reality" that has been flattened by the veneer, but which also legitimates it. The veneer acquires its power through the constant specular alternation between it and the implied prior reality. In the example of the image of Earth from outer space, the veneer depends on the conceptual link the spectator makes between the image of Earth ("I am seeing the Earth") and the concrete reality of the planet ("I am also standing on the Earth I'm seeing"). One can only assign some truth value to the image of Earth if one believes in the material Earth as a prior reality. The possibility of a prior reality, according to Dorst, opens up the possibility of a disruption of the veneer by "some radical otherness," and in this possibility lies the hope of yet another re-vision.

Notes

1. C. S. Lewis, *Out of the Silent Planet* (New York, 1967), 103.
2. Fred Hoyle, *The Nature of the Universe* (New York, 1950), 9-10.
3. "Progressive," here, does not imply an extension of any political or social thought from the Progressive Era of American history.
4. Robert Cahn and Patricia Cahn, "Did Earth Day Change the World?" *Environment* (September, 1990), 17.
5. *Ibid.*
6. Denis Hays, "Earth Day 1990: Threshold of the Green Decade," *Natural History* (April 1990), 56.
7. Barry Commoner, "Environmental Democracy Is the Planet's Best Hope," *Utne Reader* (July/August, 1990), 61, from an interview with Pat Stone in *Mother Earth News* (March/April, 1990).
8. Paul Hawken, *The Ecology of Commerce* (New York,1993), 47-48.
9. Fredric Jameson, *Postmodernism, or the Cultural Logic of Late Capitalism* (Durham, N.C., 1991).
10. Ronald Weber, *Seeing Earth: Literary Responses to Space Exploration* (Athens, Ohio,1985).
11. James Michener quoted in *Seeing Earth,* 3.
12. Daniel Boorstin quoted in *Seeing Earth,* 4.
13. Carl Sagan quoted in *Seeing Earth,* 2-3.
14. Michael L.Smith, "Selling the Moon: The U.S. Manned Space Program and the Triumph of Commodity Scientism," *The Culture of Consumption: Critical Essays in American History, 1880-1980.* Richard Wightman Fox and T. J. Jackson Lears, eds., (New York,1983), 177-209.
15. Theodore M. Hesburgh, "A Harbinger of Hope," *Michigan Quarterly Review* (Spring 1979), 183.
16. Norman Cousins quoted in *Seeing Earth,* 6.
17. John Platt quoted in *Seeing Earth,* 10.
18. Archibald MacLeish, *Riders on the Earth: Essays and Recollections* (Boston, 1978), xiv.
19. See Roderick Nash, *Wilderness and the American Mind,* 3rd Ed. (New Haven, 1982).
20. See Robert Gottlieb, *Forcing the Spring: The Transformation of the American Environmental Movement* (Washington, D.C., 1993).
21. National Staff of Environmental Action, ed., *Earth Day—The Beginning: A Guide to Survival* (New York, 1970), n.p.
22. Margaret Mead, "Earth People," *Earth Day—The Beginning,* 223.
23. William K. Hartmann, "Space Exploration and Environmental Issues," *Beyond Spaceship Earth: Environmental Ethics and the Solar System,* Eugene C. Hargrove, ed., (San Francisco, 1986), 120.
24. John Woodcock, "The Garden in the Machine: Variations on Spaceship Earth," *Michigan Quarterly Review* (Spring 1979), 308.
25. Walter Johnson, ed., *The Papers of Adlai Stevenson: Vol. VIII, Ambassador to the UN 1961-1965* (Boston-Toronto, 1979), 828.
26. Barbara Ward, *Spaceship Earth* (New York, 1966), vii.

27. See Kenneth E. Boulding, "The Economics of the Coming Spaceship Earth," *The Environmental Handbook,* Garrett De Bell, ed., (New York, 1970).

28. J. Baird Callicott, "Moral Considerability and Extra-Terrestrial Life," *Beyond Spaceship Earth,* 244.

29. Eric Sevareid, "Beyond Earth Day," *Earth Day—The Beginning,* 69-70.

30. George Wald, "Environmental Traps," *Earth Day—The Beginning,* 80.

31. Buckminster Fuller, *Operating Manual for Spaceship Earth* (Carbondale, Ill., 1969), 50.

32. Garrett Hardin, *Exploring New Ethics for Survival: The Voyage of the Spaceship Beagle* (New York, 1968), 16.

33. Rachael Carson, *Silent Spring* (Boston, 1962), 188.

34. Paul Ehrlich, "Eco-Catastrophe!" *The Environmental Handbook,* Garrett De Bell, ed. (New York, 1970).

35. Ray Bradbury quoted in *Seeing Earth,* 5.

36. Wernher von Braun quoted in *Seeing Earth,* 5.

37. Donna Haraway, *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (New York, 1989).

38. Jean-François Lyotard, "Missive on Universal History" *Critique* 41:456 (1985), cited in Steven Connor, *Postmodernist Culture* (New York, 1989), 37.

39. Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge* (Manchester, 1984).

40. Tom Wolfe quoted in *Seeing Earth,* 2.

41. Lewis Mumford, *The Myth of the Machine: The Pentegon of Power* (New York, 1970), 310.

42. See Gottlieb, *Forcing the Spring.*

43. Fredric Jameson, "Periodizing the 60s," *The 60s Without Apology,* Sohnya Sayres, Anders Stephanson, Stanley Aronowitz, Frederic Jameson, eds., (Minneapolis, 1984).

44. John D. Dorst, *The Written Suburb: An American Site, An Ethnographic Dilemma* (Philadelphia, 1989), 105.

45. Fredric Jameson, *Postmodernism,* 6.

46. Stewart Brand, "Why Haven't We Seen the Whole Earth?" *The Sixties: The Decade Remembered Now, by the People Who Lived It Then,* Lynda Rosen Obst, ed. (New York, 1977), 168.

47. *Earth Day—The Beginning,* n.p.

48. Earth Day Spawns Corporate 'Feeding Frenzy,'" *Public Relations Journal* (February, 1990).