

**'Pro-Nuclear Environmentalism**

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## ESSAY

# Pro-Nuclear Environmentalism

## Should We Learn to Stop Worrying and Love Nuclear Energy?

**RENS VAN MUNSTER and CASPER SYLVEST**

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**ABSTRACT:** In light of repeated failures to reach political agreement on effective policies to combat climate change, pro-nuclear environmentalists have set out to reverse the traditionally anti-nuclear inclinations of environmentalists. This essay examines the ideological commitments and assumptions of pro-nuclear environmentalism by performing a critical, historical analysis of the nuclear-environment nexus through the prism of documentary film. We focus on the work and career of documentary filmmaker Rob Stone, whose most recent production, *Pandora's Promise (PP)* (2013), has emerged as a central statement of this creed. *PP* actively forges a new political imaginary that replaces the apocalyptic image of nuclear fallout with that of catastrophic climate change. In terms of its rhetorical and visual strategies, however, *PP* also reveals that pro-nuclear environmentalist arguments have a long lineage. A close study of such continuities reveals a number of political implications that call for reflection as well as caution.

“Anyone who still marches against nuclear today,” writes the British environmental activist Mark Lynas, “is in my view just as bad for the climate as textbook eco-villains like the big oil companies.”<sup>1</sup> This quote indicates a change taking place in the environmental movement. Traditionally, a majority of environmentalists have considered the military and civilian use of

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1. Mark Lynas, *Nuclear 2.0*, 10–11.

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nuclear energy through a perspective of fallout, waste, and contamination, a testimony to the deeply entangled histories of nuclear technology and awareness about the environment.<sup>2</sup> Increasingly, however, a vocal group of pro-nuclear environmentalists (including Lynas) now assertively points to the green potential of nuclear energy. Their arguments go beyond an acceptance of the limited role that nuclear energy plays in today's energy mix; rather, they amount to a colossal nuclearization of our future global energy provision on the order of 800 new nuclear power plants by 2030 (equivalent to the completion of four reactors each month).<sup>3</sup> How can we make sense of pro-nuclear environmentalism? How are the arguments of this aspiring movement framed? In this essay, we examine the ideological commitments and assumptions underlying pro-nuclear environmentalism through the prism of documentary film by contextualizing and critically analyzing what is arguably the most powerful, evocative, and widely circulated statement of this creed: Robert Stone's (b. 1958) 2013 documentary *Pandora's Promise* (*PP*).

In examining the cultural configurations of the environment-nuclear nexus, the documentary constitutes a particularly interesting genre. On the one hand, it has long occupied a central place in the nuclear age as an important official vehicle for communicating the effects of nuclear weapons and for advancing the cause of nuclear energy. On the other hand, documentaries are increasingly expressions of popular, progressive politics and a staple media strategy of the environmentalist movement as well as other social movements.<sup>4</sup> In both contexts, the reason for relying on documentary film is obvious: the genre's claims to authenticity, truth, or reality bolster its political efficacy and often translate into expectations of trustworthiness among audiences.<sup>5</sup>

This view of the power of the documentary is echoed by filmmaker Robert Stone, who regards it as "without a doubt the most powerful communication tool ever invented. It works on our intellect and our emotions in powerful ways that we're not always aware of."<sup>6</sup> Since his debut in 1988, Stone's historically sensitive productions have centered exactly on nuclear and environmental themes, often from a perspective quite close to the environmentalist mainstream. With *PP*, Stone has also emerged as a central figure in and catalyst of pro-nuclear environmentalism. The film presents the boons of nuclear energy as virtually boundless and its risks as technologically manageable. A closer inspection of visual politics in the

2. Spencer R. Weart, *The Rise of Nuclear Fear*; J. Samuel Walker, *Containing the Atom*, chap. 11; Joseph Masco, "Bad Weather"; Paul N. Edwards, "Entangled Histories"; and Jacob Darwin Hamblin, *Arming Mother Nature*.

3. Lynas, *Nuclear 2.0*, 85.

4. Meg McLagan, "Imagining Impact."

5. Rens van Munster and Casper Sylvest, eds., *Documenting World Politics*.

6. Robert Stone, email interview by authors.

nuclear age, however, reveals a series of issues concerning nuclear technology that we should not stop worrying about.

\* \* \*

Ever since the dropping of atomic bombs on Hiroshima and Nagasaki in August 1945 first brought home the tremendous power of atomic energy, “atomic” and “nuclear” have been Janus-faced prefixes. To some observers, they signify, above all, danger, death, and destruction. To others, in turn, they evoke a strong sense of achievement and a promise of energy abundance.

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This bipolar oscillation between fear and hope has assisted the continuous rebirth of atomic utopianism. During the early decades of the cold war, energy abundance, atomic automobiles, and domestic nuclear power plants were touted as realistic technoscientific possibilities.<sup>7</sup> Despite early advances in biomedical research, however, it was only in 1953 that the idea of the civilian application of nuclear energy received a decisive boost with President Dwight Eisenhower’s Atoms for Peace program. The political motivations behind this program were complex. They included attempts to soothe domestic fears, score points in a global ideological conflict, accommodate business interests in nuclear power plants, and confer a military advantage on the United States vis-à-vis the Soviet Union.

At the core of Atoms for Peace, however, lay an attempt to enshrine a distinction between the malign, military uses of nuclear energy and its positive, civilian applications.<sup>8</sup> Within a few years, the idea of the peaceful atom gave rise to a huge conglomerate of energy infrastructure and security politics, involving the commercialization of nuclear technology, building of nuclear power plants, export of reactor technology, and monitoring of nuclear activities of foreign countries.

These technoscientific activities were wrapped in domestic and international propaganda campaigns complete with exhibits, films, journals, and pamphlets reaching millions across continents.<sup>9</sup> Some of the most iconic imagery produced at the time involved a collusion of public and private interests. *Our Friend the Atom* was a 1956 book, followed by the 1957 television documentary episode, produced by Disney and sponsored by General Dynamics, a company producing nuclear reactors. The film’s host and the book’s author was Heinz Haber, a German-born nuclear physicist, who explained basic atomic physics and sought to reassure viewers that the atom could be “our friend.”<sup>10</sup> Inescapable ambivalences notwithstanding,

7. Paul Boyer, *By the Bomb’s Early Light*, 114, 116; Kenneth Osgood, *Total Cold War*, chap. 5.

8. Richard G. Hewlett and Jack M. Holl, *Atoms for Peace and War, 1953–1961*; John Krige, “Technological Leadership and American Soft Power.”

9. Weart, *The Rise of Nuclear Fear*; Osgood, *Total Cold War*, chap. 5.

10. Eric Schlosser, *Fast Food Nation*, 39, 283n.; Ferenc Morton Szasz, *Atomic Comics*, 71.

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FIG. 1 Still from *Our Friend the Atom*, 1957, visually illustrating the need for and future with more nuclear power plants (Source: screenshot from *Our Friend the Atom*, Walt Disney.)

in such campaigns it was ultimately the potential of radioactivity and isotopes in health treatment and the promise of energy abundance that took center stage; thus, *Our Friend the Atom* opened with a genie leaving the bottle before, eventually, fulfilling human needs for power, health, and peace (fig. 1).

The view that the atom was a symbol of progress that should power the American way of life struggled, however, to gain full acceptance from an increasingly anxious public continuously reminded of the dangers of nuclear weapons through an alternative iconography of mushroom clouds, sudden flashes, and excruciating blast effects also documented on celluloid. Such images are legion and appeared in educational films (e.g., *Duck and Cover*, 1951), in political campaigns (e.g., President Lyndon Johnson's "Daisy" commercial, 1964), and in a range of nuclear test documentaries.<sup>11</sup> Over time, the strongest ideological challenge to the peaceful atom emerged from growing proto-environmentalist concerns originating in the anti-nuclear movement.<sup>12</sup> Equating the technology-induced prospects of indefi-

11. Bob Mielke, "Rhetoric and Ideology in the Nuclear Test Documentary"; Joseph Masco, "Target Audience"; Casper Sylvest, "Shots of Ambivalence."

12. Samuel P. Hays, *Beauty, Health, and Permanence*, and Walker, *Containing the Atom*, chap. 11.

nite growth and consumption with imminent destruction, such thinking became a crucial inspiration for ideas about stewardship and wholeness that fed into the popular environmental movement and countercultural critique of the 1960s and the 1970s.<sup>13</sup> In short, a complex cacophony of environmentalist voices—many of them questioning the risks accompanying a seemingly ever-expanding technological civilization—served to break down the distinction between military and civilian applications of nuclear energy: fallout, radiation, and nuclear waste were framed as the interlinked symbols of a world gone awry.

Robert Stone's first and arguably best-known production, *Radio Bikini* (1988), illustrates the extent to which nuclear fear had become woven into the fabric of a progressive politics concerned with environmental destruction and technological hubris. Nominated for an Academy Award, the film focuses on the effects of radiation and subtly revolts against a destructive, bland, and complacent postwar mentality by exploiting evocative anti-nuclear iconography. Through the use of archival footage produced by the U.S. government, the film critically examines the atomic test program conducted at Bikini Atoll in 1946 and its effects on the local population and American servicemen. The unspoken aim clearly is to question nuclear policy and its underlying infrastructure. Cleverly subverting images and messages that once conveyed authority and reassurance in the early nuclear age, *Radio Bikini* makes them come across as their very opposites (a technique or sort of visual, subversive nukespeak pioneered in the 1982 documentary *The Atomic Café*). For example, the film undermines government propaganda by showing the construction of a tragicomic scene featuring a Department of Defense official explaining to the native population of Bikini how they need to be relocated in order for the atomic bomb to be tested—all for the greater benefit of humankind.

Stone's historical examination of radiation and fallout reflected a general, contemporary fear of nuclear weapons. Such sentiments spread during the intensification of the cold war in the late 1970s and early 1980s and were also fueled by controversies about radiation safety following the abolition of the Atomic Energy Commission.<sup>14</sup> A clever use of film technique enabled Stone to convey this deep unease with weapons of mass destruction and the ideology of technological mastery underpinning them. Thus, the climactic scene of *Radio Bikini* is an interview with test veteran John Smitherman played against images from the time. A sudden cut directs the attention of the viewer to Smitherman's physical disabilities, including his

13. Donald Worster, *Nature's Economy*; Adam Rome, "Give Earth a Chance"; J. R. McNeill and Corinna R. Unger, eds., *Environmental Histories of the Cold War*.

14. Lawrence S. Wittner, *Confronting the Bomb*, chaps. 6–7. For detailed histories of radiation protection and safety in the United States during the cold war, see Barton C. Hacker, *Elements of Controversy*; J. Samuel Walker, *Permissible Dose*.

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lower body with missing legs and an enormously swollen and hideously disproportional left hand.<sup>15</sup>

Although the film has been credited with providing a “visual history” of the early days of the atomic age, it also tackled the issue of fallout from a decidedly 1980s context of heightened tensions between the United States and the Soviet Union.<sup>16</sup> The immediate backdrop to this film was of course the inauguration of Ronald Reagan as president of the United States in 1981. Reagan’s political agenda of unbounded economic growth and an assertive foreign policy seemed to many in direct conflict with environmentalist and anti-nuclear views stressing the values of peace, individuality, wholeness, and ecological stewardship. This view was further strengthened with the occurrence of major reactor accidents like Three Mile Island and Chernobyl.<sup>17</sup> Although in *Radio Bikini* warheads take center stage, by the 1980s nuclear fear had gained “a special place” in the environmental movement both emotionally and conceptually, which in turn flavored progressive politics more widely.<sup>18</sup> Metaphors originating in one domain effortlessly wandered into the other: “nuclear winter” became the favored trope through which to discuss the effects of nuclear war, while risks of reactor meltdowns often were described in warlike terms such as “reactor bombs.”<sup>19</sup>

The distinction between civilian and military nuclear energy was constantly destabilized and collapsed. Radioactive fallout was at the core of the nomenclature that forged such connections, and it served to undermine the distinction constructed by promoters of peaceful atoms. As Stone himself argues,

The idea that we’re really just these highly evolved apes who’ve accessed the power of the universe was always in the back of my mind when making *Radio Bikini*. I was struck by the *hubris* of thinking that we could control what was essentially beyond our control. Chernobyl happened while I was making the film and I think that both confirmed my view about this technology and extended it from nuclear weapons to nuclear power.<sup>20</sup>

*Radio Bikini* clearly spoke to and from a climate where “nuclear” had become anathema for anything progressive or green. In part, when Stone made his debut he was a product of environmentalism.

15. Sylvest, “Shots of Ambivalence.”

16. Clayton R. Koppes, “*Radio Bikini*,” and Robert Brent Toplin, “The Filmmaker as Historian.”

17. See, for example, J. Samuel Walker, *Three Mile Island*.

18. Weart, *The Rise of Nuclear Fear*, 194.

19. Masco, “Bad Weather,” 21; Jonathan Schell, *The Fate of the Earth*.

20. Stone, email interview.

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Stone's more recent film *Earth Days* (2009) is a form of history "writing" that captures the complexities and causes of the growth of the environmental movement in the United States. It constitutes a visual reflection on the history of a social movement that cautiously recovers the manifold dimensions of its ideological foundations. Centered on the first Earth Day (22 April 1970)—a famous founding moment—the film revolves around portraits of and interviews with iconic figures, including former secretary of the interior Stewart Udall ("the conservationist"), the founder of *Whole Earth Catalog*, Stewart Brand ("the futurist"), the population control scholar Paul Ehrlich ("the biologist"), the national coordinator of Earth Day, Denis Hayes ("the organizer"), and the hippie astronaut Rusty Schweickart ("the astronaut"). The diversity of the cast not only brings out the multiplicity of environmentalist ideas—from traditional conservationists to neo-Luddites—but also stresses how a sense of *global* peril and crisis emerged as a common rallying point.

In describing the diversity and popularization of environmentalist ideas, Stone once again puts nuclear issues front and center. Rachel Carson's *Silent Spring* (1962) plays a role in the film's opening section, but it is the mushroom cloud that really elevates the idea that human aspirations, needs, and policies have to be balanced—globally—against the inherent limits of nature. As Hayes recollects:

When I was born Strontium-90 did not exist. By the time I was a teenager, every living creature on the planet had Strontium-90 in its bones or its shells. . . . This was the first generation that had acquired the power of a geophysical force that could force brand new radioactive substances to be disseminated throughout the entire planet. . . . That could change the climate.<sup>21</sup>

For central figures in the environmentalist movement, nuclear technology illustrated how the American way of life would eventually stretch the carrying capacity of Earth beyond its limits. Fallout made it possible to see the world as one, and nuclear energy (military as well as civilian) became embedded in a worldview that instead of progress offered ecological destruction. Such worries had roots in the contemplation of large-scale violence following World War II. For proto-environmentalists, the experience of total war had led to new, "total" understandings of the environment focused on limits—of resources, food production, and populations. Paul Ehrlich, author of *The Population Bomb* (1968), became a central figure in this story, but several thinkers associated with opposition to nuclear weapons in the 1950s shared these concerns.<sup>22</sup> In effect, nuclear fear deep-

21. Denis Hayes, in *Earth Days*.

22. Thomas Robertson, "Total War and Total Environment"; Rens van Munster and Casper Sylvest, *Nuclear Realism*, chap. 4.



ened anxieties about planetary limits and futures and highlighted the dysfunctional relations between technology, society, and nature.

Hence, *Earth Days* also traces how the image of a “technological Leviathan” entered the environmentalist imagination, partly as a result of growing distrust of political authority and the military-industrial-technological complex.<sup>23</sup> The dystopia was a catastrophe of planetary dimensions caused by a way of life hopelessly oblivious to the limits of nature. To many environmentalists, Earth Day marked the possibility of an alternative future free from dehumanizing technology, centralized bureaucracy, the destruction of nature, and the rationalization of social life. Thus, although the journal *The New Republic* had initially been skeptical about the political significance of Earth Day—seeing it as a passing moment and an outlet for antiwar frustration—it subsequently changed its editorial opinion, seeing the event as “an awakening to the dangers in a dictatorship of technology.”<sup>24</sup> Visually, Stone captures this mood through a nostalgic juxtaposition of historical black-and-white footage of countryside and agriculture with footage of cars, road constructions, chimneys, industrial plants, and DDT being sprayed on children eating and swimming. Contrasting gray waste to colorful shots of windmills in the sun and unspoiled nature, *Earth Days* conveys the built-in destructiveness of modern technological civilization and its ideology of limitless growth.

However, the film also refuses to reduce environmentalism to a romantic, Luddite longing for an irretrievable past. For example, Stone’s narrative also includes a description of a decisively modernist position within the movement that did not reject technology per se.<sup>25</sup> In this view, represented by Stewart Brand, the problem lay in how and why particular technologies were being deemed appropriate whereas others were not: the right technologies *could* and *should* play a central role in building social structures that would allow the planet and human civilization to survive and thrive. In 1968, Brand adopted an Apollo-mission Earth photograph for the cover of his *Whole Earth Catalog*, a publication which basically provided access to the tools and technologies necessary for the development of new lifestyles in tune with nature. Despite the deeply militaristic origins of the *Whole Earth* photo, Brand came to associate it with a sense of new-found, planetary holism where people would go “back to basics,” “reinvent civilization,” and “blend with nature”<sup>26</sup> (fig. 2).

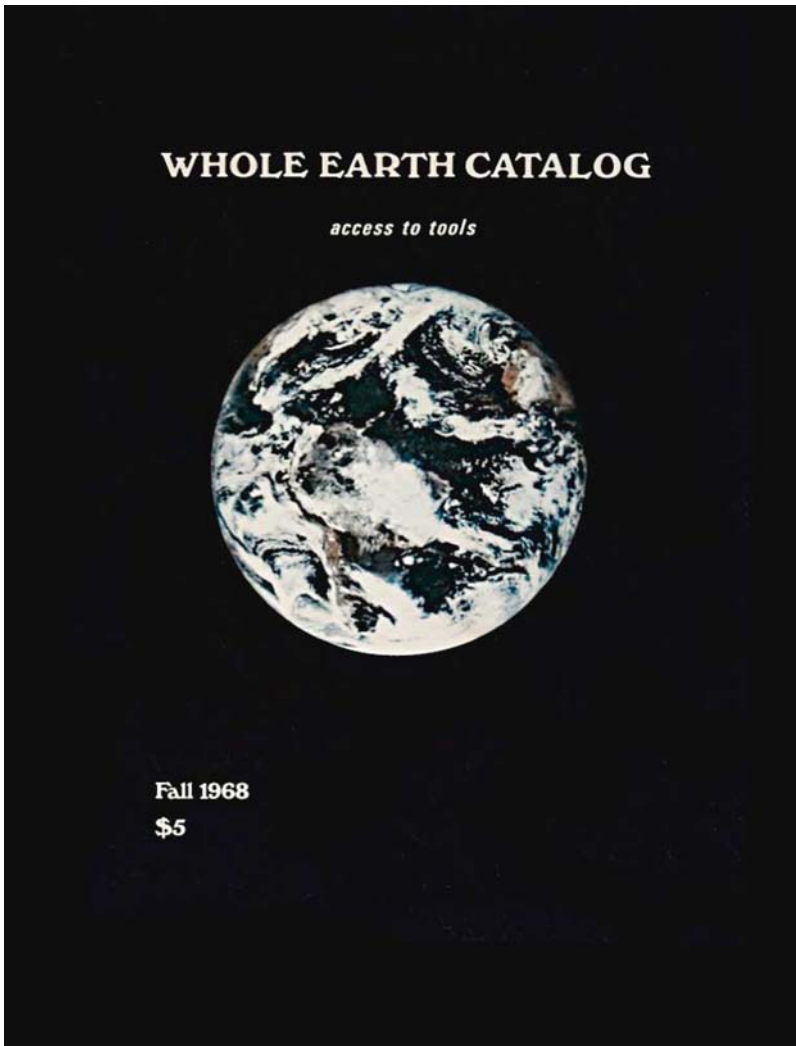
The harnessing of technology to construct a society in balance involved an understanding of wholeness as both planetary and psychological (Brand

23. Michael Egan, *Barry Commoner and the Science of Survival*, 5.

24. “Pollution Politics,” 5.

25. Walter A. Rosenbaum, *Politics of Environmental Concern*, and Weart, *The Rise of Nuclear Fear*.

26. Stewart Brand, in *Earth Days*.



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FIG. 2 The 1968 *Whole Earth Catalog*. (Source: [wholeearth.com](http://wholeearth.com), Stewart Brand.)

explains that he first realized the importance of seeing the planet as a sphere (after an LSD trip on a rooftop) that in turn brought green lifestyle infrastructures within reach. Brand's motto, as Stephanie Mills approvingly recalls in the film, was "we are as gods and we might as well get good at it." In this spirit of divine improvement, the back-to-the-land movement took its inspiration not only from Ehrlich (a teacher of Brand's at Stanford), but also from figures like Richard Buckminster Fuller, James Lovelock, and Marshall McLuhan. In part this counterculture was highly original, but it

also had roots in the computer-driven cognitive revolution in science and politics at the time. Against a background of fears about the acceleration of social life and the fate of the planet, countercultural and environmentalist appropriations of cybernetic worldviews held out the possibility of realigning the social world with the laws of nature.<sup>27</sup> (figs. 3–4).

Yet the scale of technologies or technological systems remained important for many environmentalists in this quest to reorganize society along more sustainable lines. Anti-nuclear positions were deepened by fears that the introduction of large-scale nuclear technology would ultimately foster authoritarian forms of power epitomized by the military-industrial complex. As Denis Hayes put it: “The increased deployment of nuclear power facilities must lead society toward authoritarianism. Indeed, safe reliance upon nuclear power as the principal source of energy may be possible only in a totalitarian state.”<sup>28</sup>

As part of a richly constructed history of environmentalism, *Earth Days* documents the short-lived success of an eco-modernist worldview during the 1970s, when ideas combining decentralized forms of energy and progressive beliefs in pluralism and individual and cultural freedom entered mainstream politics. Thus, Stewart Brand and Rusty Schweickart began working for California governor Jerry Brown, himself inspired by eco-modernist ideas, and Denis Hayes was employed by President Jimmy Carter to head the federal Solar Energy Research Institute.

In short, while *Earth Days* was intended to reflect a “new awakening” to reality and to return an ineffective environmental lobby to its roots, it is a visual contemplation on the diversity, identity, and legacy of a movement that in Stone had found a careful curator and thoughtful custodian.<sup>29</sup>

\* \* \*

While Stone describes his growing uneasiness with the modern environmental movement after finishing *Earth Days* as leading “directly to the making of *Pandora’s Promise*,” this latest film presents a sharp break, in both tone and political outlook, from *Radio Bikini* and *Earth Days*.<sup>30</sup> Indeed, *PP* constitutes one of the most forceful and widely circulated critiques of the alignment between anti-nuclear and environmentalist ideas at the level of social movements and activist politics. The backdrop to the film is the so-called “nuclear renaissance” that has gathered political momentum since the turn of the millennium and which in the United States has been assisted by President Barack Obama’s 2010 decision to supply favorable loans for construction of new nuclear power plants. Although the

27. This story is yet to be written, but see Fred Turner, “Buckminster Fuller”; Paul N. Edwards, *The Closed World*.

28. Denis Hayes, cited in Langdon Winner, “Do Artifacts Have Politics?” 121.

29. The “new awakening” is mentioned by Robert Stone, interview with Uprising radio.

30. Stone, email interview.

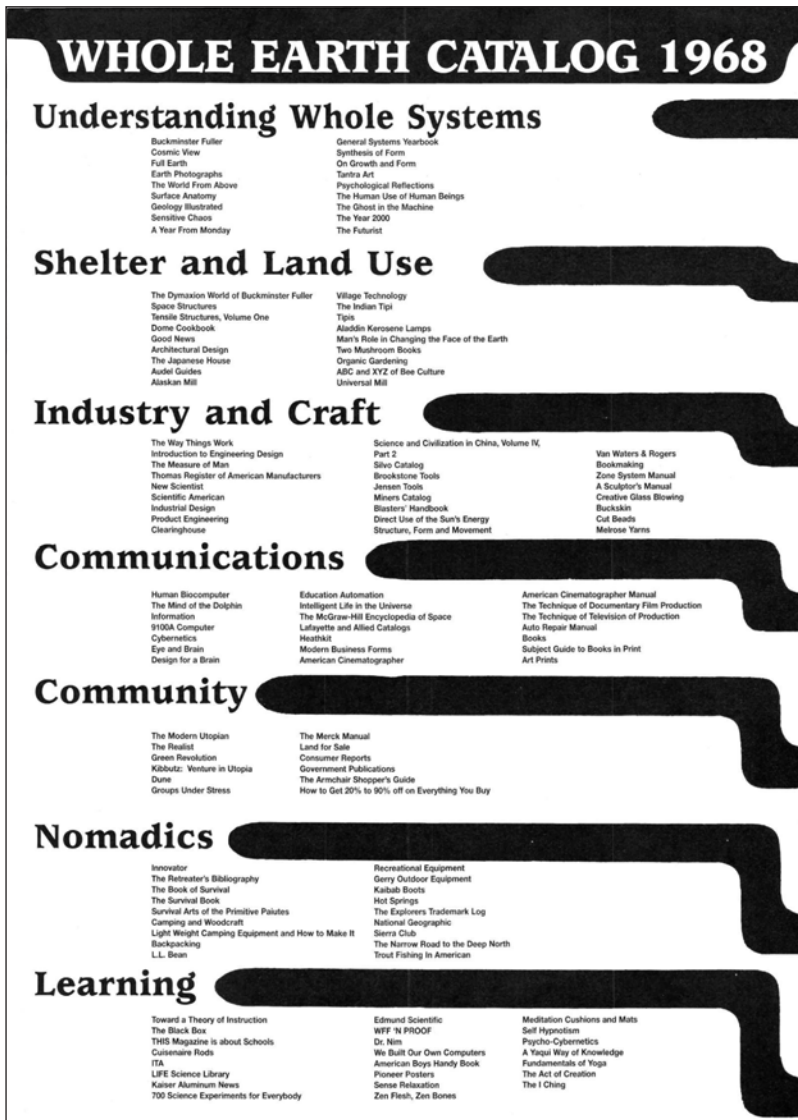


FIG. 3 The 1968 *Whole Earth Catalog*, frontispiece. (Source: wholeearth.com, Stewart Brand.)

nuclear energy industry's near-perpetual crisis shows few signs of abating, *PP* supports the (drive for a) renaissance.<sup>31</sup> In fact, the rationale of the film is to revisit and revise environmentalist views of nuclear technology by

31. For the crisis, see Mycle Schneider, Antony Froggatt, et al., *The World Nuclear Industry Status Report 2014*.

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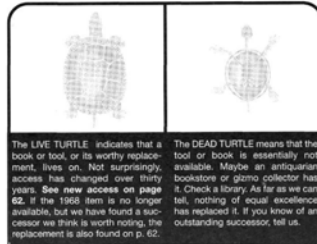
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FIG. 4 The 1968 *Whole Earth Catalog*, excerpt. (Source: wholeearth.com, Stewart Brand.)

(re)introducing a clear distinction between its military and civilian applications. Whereas the former is routinely deployed (but also largely ignored), the latter is now embraced as *the* solution to climate change.

In an attempt to make this case, the film revolves around a select cast of figures: Stewart Brand (again), Pulitzer Prize-winning nuclear historian

Richard Rhodes, science writer Gwyneth Cravens, British activist Mark Lynas, and Michael Shellenberger, coauthor of an essay on the “death of environmentalism.”<sup>32</sup> The very explicit political point of the film—that nuclear energy is the only cost-effective and realistic way of fighting climate change—is further supported by expert testimonies from nuclear engineer Leonard Koch and nuclear physicist Charles Till, both of whom promote a breeder reactor that differs from the light-water reactors that have so far dominated the industry.

This interesting setup issues in a new and much narrower conception of what counts as (progressive) environmentalism. In fact, rather than a product or custodian of a rich environmental movement, Stone now emerges as an ideological critic-cum-innovator driven by internal opposition to the movement’s mainstream. Whereas Stone’s earlier films expressed core values of the nuclear disarmament and environmentalist movements—above all exposing dangers inherent in illusions of mastery and critiquing conspicuous consumption in modern cultures of growth—*PP* is at once more assertive, pragmatic, and optimistic. Notably, the film displays considerable faith in the role of large-scale technologies and rational organization in curbing climate change. To understand the origins and character of pro-nuclear environmentalism, it is worth zooming in on the assumptions driving the core argument of *PP*. They are most clearly revealed by contrasting the imagery and film effects of *PP* with the visual strategies of Stone’s earlier productions and contemporary anti-nuclear documentaries like *The Atomic States of America* (directed by Don Argott and Sheena M. Joyce, 2012), a film that chronicles local opposition to nuclear power plants and experimental reactors based on health effects, poor management, and inefficient regulation (table 1).

These underlying commitments emerge from a combination of spoken words, imagery, and filmic effects that frame environmentalist identities. Whereas *Earth Days* contrasted gray nuclear power plants with footage of scenic wildlife, and *Radio Bikini* vividly displayed bodily effects of exposure to radiation, *PP* is full of technological optimism, utilitarian ethics, and a drive to demythologize radiation. It cleverly frames the difference between the two forms of environmentalism through a collage of stories of painful and difficult conversion. The five central figures all admit to previous mistakes caused by their upbringing within a movement blinded by what Lynas calls “implacable multi-decadal hatred” of nuclear energy.<sup>33</sup> This point is relentlessly pursued throughout the film by a variety of argumentative and film strategies. First, *PP* presents anti-nuclear environmentalists in a highly unfavorable light. This is most evident in its focus on the Australian activist Helen Caldicott who has been accused of inflating casu-

32. Michael Shellenberger and Ted Nordhaus, *The Death of Environmentalism*.

33. Lynas, *Nuclear 2.0*, 31.

TABLE 1

UNDERLYING COMMITMENTS OF ANTI-NUCLEAR AND PRO-NUCLEAR ENVIRONMENTALIST IDEOLOGY

	<i>Anti-nuclear environmentalism</i>	<i>Pro-nuclear environmentalism</i>	
OCTOBER 2015 VOL. 56	<i>Technology</i>	pessimism/skepticism	optimism
	<i>Ethics</i>	precautionary principle (intuitive)	utilitarian, supreme emergency
	<i>Expertise</i>	mistrust, bodily experiences, gut feelings	official studies are reliable, rationality, calculability
	<i>Civil-military distinction</i>	implicit collapse (“nuclear fear”)	institutionalizes a clear border
	<i>Fallout/radiation</i>	invisible, intangible, dangerous	natural, measurable, tangible
	<i>Nuclear time</i>	slow decay	continuous (Chernobyl is merely a passing of time)
	<i>Political space</i>	local and global	global

alty numbers of nuclear accidents. Stone exposes and magnifies Caldicott’s shrill critique of anything nuclear by confronting her at a small, chaotic rally of anti-nuclear activists. In contrast, *PP*’s converts are all filmed in atmospheres and sites of contemplative reflection like private studies or open fields. The message is clear: supporting nuclear energy is rational and reasonable, while opposition is cast as unfounded, emotional, irrational, and immature.

This strong dichotomy is underpinned by a new environmentalist understanding of the apocalypse. In tune with the vocabulary and legacy of much of the environmental movement, this dystopia is both global and catastrophic. Only now it is constituted not by nuclear war, nuclear winter, fallout, or a general degradation of human living space on Earth, but rather by climate change. This “carbon bomb” which urgently needs defusing—as Lynas describes the climate predicament in a book accompanying the film—simultaneously serves as the basis of environmentalist soul-searching, a harbinger of ideological innovation, and a trump card in meeting objections.<sup>34</sup> Nuclear energy, in short, constitutes an acceptable risk given the catastrophic dangers of climate change. Stone and Lynas do much to naturalize radiation by measuring background radiation (using technological devices) around and above the globe; at one point the film even alludes to its beneficial health effects by filming a man buried in sand at a Brazilian beach possessing naturally high levels of radiation. Impersonal statistics and scientific investigations drive the argument, rather than testimonies of negative health effects and skepticism toward contaminated knowledge.

34. *Ibid.*, 6–7, 48.





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FIG. 5 Director Robert Stone (left) alongside British activist Mark Lynas during a visit to the Fukushima nuclear power plant in 2012. (Source: Still from *Pandora's Promise*. Photo credit James Hollow.)

Thus, Lynas explicitly presents his arguments “using numbers rather than just assertions,” because “this is a numbers game.”<sup>35</sup> Moreover, the role of major nuclear accidents in environmentalist rhetoric is boldly overturned. A visit to Chernobyl is included to demonstrate that local residents have returned to the town without experiencing abnormal health effects, while Fukushima is presented as the perfect storm—combining an earthquake, a tsunami, and three reactor meltdowns. Given its (purportedly) limited effects, the disaster is put in the service of a pro-nuclear argument (fig. 5).

In advancing the case of nuclear energy *PP* cleverly dismantles potential criticism by appealing to progressive, liberal ideals of global economic and environmental justice. Since climate change is irreversible, and since solar, wind, and other utopian ideas of local-to-global environmentalism are purportedly insufficient to stem the tide, being anti-nuclear is virtually equated to propping up an indefensible global economic order. Moreover, specific arguments in favor of wind and solar energy are met by familiar objections: they are unreliable as sources of continuous supply, they make up a miniscule part of global production that is eaten up by increased demand, and they eventually rely on and further carboniferous energy production. Hence, as Richard Rhodes unambiguously drives home the point: “To be anti-nuclear is basically to be in favor of burning fossil fuels.”<sup>36</sup>

Responses to *PP* have varied widely. It received critical acclaim at the 2013 Sundance Film Festival, and many have spoken highly of the

35. *Ibid.*, 9.

36. Richard Rhodes, in *Pandora's Promise*.



film.<sup>37</sup> Unsurprisingly, perhaps, some anti-nuclear activists and environmentalists remain unconvinced. They point to a range of problems, including the unsympathetic treatment of counterarguments, technical difficulties in the proposed reactor design, dangers of proliferation of nuclear weapons, the film's implicit rapprochement with the nuclear power industry, the environmentalist credentials of the film's central figures, and the involvement of CNN and pro-nuclear business tycoons in the production and promotion of the film.<sup>38</sup> According to the NGO Beyond Nuclear, there simply "is no such thing as a 'pro-nuclear environmentalist.'" <sup>39</sup> Despite this criticism, the political argument advanced in *PP* is alluring and may succeed in overturning some conventional environmentalists' automatic, knee-jerk opposition to nuclear power. After all, nuclear energy *is* part of today's energy mix and is likely to remain so for some time.<sup>40</sup>

Whether we should uncritically accept the reconfiguration of the distinction between civilian and military use of nuclear power on the scale suggested by pro-nuclear environmentalists is, however, another matter. Given the sophistication and reflexivity that characterize the life-stories of pro-nuclear environmentalists, as well as Stone's previous productions, *PP* remains strikingly silent about the fact that its core argument as well as the rhetorical and visual forms it takes have recurred throughout the nuclear age. The need to juggle risks, the urge to fight dangerously irrational and emotional nuclear fear, or the call to combat global warming by nuclear energy—all have checkered histories that Stone and pro-nuclear environmentalists are aware of but do little to expose.<sup>41</sup> On the contrary, at crucial junctions *PP*'s rhetoric and imagery strongly resemble that of propaganda campaigns during the early nuclear age. This is no coincidence. Stone's showdown with the dogmatism of conventional environmentalism and "the technophobic, cynical, apocalyptic, and conspiratorial thinking of the mainstream left" involves a drastic reevaluation of cold war propaganda efforts:

One of the great ironies about our relationship with nuclear energy is how so much of that 1950's imagery and the arguments surrounding it actually turns out to contain a surprising amount of truth. As a

37. Mark Hertsgaard and Terry Tempest Williams, "Pandora's Terrifying Promise," and the *New York Times Dot Earth* blog. Also Michael Specter, "Time to Go Nuclear."

38. FAIR, "CNN Doubles Down on Pro-Nuclear Bias"; Linda Pentz Gunter, *Pandora's False Promises*; Linda Pentz Gunter and Kevin Kamps, "Don't Trade Global Warming for Nuclear Meltdowns"; and Ed Lyman, "Movie Review: Put 'Pandora's Promise' Back in the Box."

39. Gunter, *Pandora's False Promises*, 36.

40. Will Boisvert, "The Left vs. the Climate."

41. Tochiro Higuchi, "Atmospheric Nuclear Weapons Testing"; Jacob Darwin Hamblin, "Exorcising Ghosts in the Age of Automation"; Jacob Darwin Hamblin, "Fukushima and the Motifs of Nuclear History"; Hertsgaard and Williams, "Pandora's Terrifying Promise."

generation we've made fun of all that stuff mercilessly, assuming that because the government said it then the exact opposite must be true.<sup>42</sup>

The link between the early nuclear age and our state of climate emergency is clearly displayed toward the end of *PP* where “the nuclear renaissance” is presented as the beginning of “something beautiful,” in the words of Steward Brand. In this context the risk of proliferation of nuclear weapons is virtually ignored. Given the historical role of Atoms for Peace programs in causing proliferation, it is somewhat surprising that this theme is only mentioned twice in the film: by a nuclear engineer (in a throwaway remark) and by Richard Rhodes who argues that “[w]e won't get rid of nuclear weapons by forgetting how to make them. We will get rid of nuclear weapons by deciding we don't want them around anymore.”<sup>43</sup> Ultimately, the risks associated with proliferation are not the main concern for the pro-nuclear environmentalists in *PP*. Instead, Brand stresses the beauty of vertical disarmament efforts by which Russian warheads are used to light up U.S. cities. The visual backdrop is an electrified globe nearly identical to an image that appeared in *Our Friend the Atom*: an atomic utopianism of peace and progress has returned in environmentalist clothing (figs. 6–7).

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The documentary filmmaking of Robert Stone, who is at once a product, a custodian, and an internal critic of the environmental movement, provides an instructive lens through which to analyze the ideology of pro-nuclear environmentalism. What emerges is a curious mixture of ideological continuity and change. On the one hand, the protagonists of pro-nuclear environmentalism portray themselves as agents of change. In the attempt to disentangle anti-nuclear and environmentalist ideas, they certainly represent a strong break with much conventional environmentalist thinking. On the other hand, their position finds some resonance in the manifold ideas that contributed to the rise of environmentalism in the United States.

Yet this combination of old and new has several limitations that call for reflection as well as caution. Robert Stone has argued that “[n]uclear, in my view, is no longer a choice; it's a necessity.”<sup>44</sup> Framing matters, however. Just as a camera can be used to zoom in on historical and political issues, it also leaves some things outside the frame. Indeed, pro-nuclear environmentalism resuscitates the rhetoric and imagery associated with peaceful atoms during the early nuclear age while deliberately downplaying the risks that have traditionally been associated with nuclear energy provision.

42. Stone, email interview.

43. Leonard Weiss, “Atoms for Peace.” See also John P. Banks and Charles K. Ebinger, eds., *Business and Nonproliferation*.

44. Robert Stone, “From the Catskills to the Cotsworld.”

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FIG. 6 The electrified Earth. (Source: Still from *Pandora's Promise*. Photo credit Robert Stone.)

These include the proliferation of nuclear weapons capabilities and actual, well-documented problems with costs and safety within the nuclear power industry. Pro-nuclear environmentalists sometimes display a curious lack of historical reflexivity as they appear to discard conventional environmentalism's hard-learned lessons about the limits of rationality, technology, and human mastery. There is arguably no more emblematic demonstration of such risks than the early nuclear age.

At the same time, claims about nuclear energy as a way to achieve global justice need qualification, not least because the film neglects the larger global infrastructure of nuclear energy.<sup>45</sup> While *PP* measures background radioactivity across the globe in order to naturalize this energy source, the social and environmental consequences of the mining of yellowcake in Africa and other places are evaded. In addition, by making technology the central starting point in environmental discussions, pro-nuclear environmentalism appears, in fact, highly conformist. Despite its claim to radicalism, the only alternative to global (carboniferous) capitalism is, apparently, global (nuclear-powered) capitalism. Invoking a mas-

45. See Gabrielle Hecht, *Being Nuclear*.



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FIG. 7 The electrified Earth. (Source: Screenshot from *Our Friend the Atom*, Walt Disney.)

sive buildup of nuclear energy as a necessity in combating climate change may preclude other, more progressive political futures. Viewed in this light, there may be good reasons both to keep worrying and to show restraint in our enthusiasm for the proverbial silver bullet.

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