Sayonara Nukes

The Case for Abolishing Nuclear Energy and Nuclear Weapons

Dennis Riches

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Foreword

On the occasion of publishing Professor Dennis Riches' book, Sayonara Nukes: Arguments for the Abolition of Nuclear Energy and Weapons by 2045, by the Center for Glocal Studies, Seijo University, I would like to extend our sincere congratulations to the author and discuss how this publication is situated among other research carried out by the Center for Glocal Studies.

Recently, almost ten years after the formulation of "glocal studies" and the subsequent establishment of the Center for Glocal Studies (CGS) at Seijo University, I and some of my colleagues had meetings to critically review the development of our glocal studies and the achievements of the CGS.

Glocal studies, which a group of trans-disciplinary-minded researchers at Seijo University has formulated and promoted, is an independent research field in which socio-cultural glocalization is theoretically and empirically explored. The concept of glocalization is redefined in order to focus on the simultaneity and reciprocity of globalization and localization. Based on the acknowledgement that glocalization is one of the most important keywords for characterizing the contemporary socio-cultural realities, we have formulated a new research field focusing on glocalization, i.e. glocal studies. By conducting glocal studies, we attempt to objectify or visualize "the invisible" in hitherto established disciplines and to symmetrize or equalize "the power imbalance" between "the center" (Euro-American developed nations) and "the periphery" (non-Euro-American developing countries) of globalization.

Since its establishment in October 2008, the researchers at the CGS have strived to shed light on hitherto not-fully-examined socio-cultural dynamics within myriad "contact zones" between the global and the local, the center and the periphery, and the "external and internal" of various groupings and/or communities. In conducting glocal studies, we also focus on developments that rebalance what is thought of as an asymmetrical socio-cultural power balance between Euro-American developed and non-Euro-American developing countries. We especially seek to enrich

contemporary debates about globalization and resultant synchronically and diachronically changing societies and cultures from a trans-disciplinary perspective.

As a result of our efforts, the research findings are, when compared to those of global studies, demonstrably unique. This can be understood just by looking over the book titles we have published: i.e. From Community to Commonality: Multiple Belonging and Street Phenomena in the Era of Reflexive Modernization (Monika Salzbrunn and Yasumasa Sekine, 2011), Theories about and Strategies against Hegemonic Social Sciences (Michael Kuhn and Shujiro Yazawa (eds.), 2012), Orientalism at the Turn into the Twentieth Century: Cultural Representations and Glocal Studies (Kenji Kitayama et.al (eds), 2015), Glocal Perspectives on Intangible Cultural Heritage: Local Communities, Researchers, States and UNESCO, with the Special Focus on Global and National Perspectives (Tomiyuki Uesugi and Mari Shiba (eds.) 2017).

We may say that the CGS has significantly advanced glocal studies to the extent that the theory, method and findings of glocal studies are now differentiated from those of global studies. However, through the review of glocal studies we have also come to find that our endeavor to objectify or visualize the local realities in glocal settings by focusing on local actors/agents and their agency has not been fully achieved. Accordingly, our efforts for symmetrizing or equalizing the power imbalance have also been insufficient. That may pose an existential challenge to glocal studies: the formulation of glocal studies might be meaningless if its ultimate objective is not accomplished.

One of the effective ways to justify the raison d'etre of glocal studies is, I think, to introduce a phenomenological approach to glocal studies. A phenomenological approach enables us to focus on “lived experience” or agency of individual actors or agents in glocal contexts. “Phenomenological glocal studies,” as we may call it, enables us to objectify or visualize the local and individual realities in glocal contexts and leads to symmetrizing or equalizing the power imbalance between the global and the local.

The author of this book, Professor Dennis Riches, is a Research Fellow of the CGS and the book he compiled and edited based on his blog postings might be, in a sense, considered as the first product of our phenomenological glocal studies. The author himself has lived a glocal or transnational life, taken the role of a glocal actor and/or agent, and exerted a glocal agency by writing in recent years about the history of the global deployment of nuclear technologies. In this sense, the author is researching while being an actor/agent of phenomenological glocal studies. In other

words, we could say that his book contains both objective research and subjective description of life in the nuclear age.

In the end of "Foreword," I personally would like to express my heartfelt respect to the author of the book for boldly addressing one of the most sensitive issues for Japan after the Fukushima Dai-ichi nuclear power plant accident: i.e. all issues pertaining to Japan's adoption of nuclear energy and the security of the American "nuclear umbrella." Visualizing the invisible, voicing the unvoiced, describing the undescribed, etc., should be one of the central objectives of our phenomenological glocal studies. Expressing his determined conviction against both nuclear weapons and nuclear energy, the author has opened new field of glocal studies for exploring contemporary issues and envisioning a better future. We fully understand that resolving the problems arising from nuclear energy and nuclear weapons is increasingly critical for envisioning a better future. But, at the same time we also understand that the argument about "nukes" is an ongoing process, and we must confess that we ourselves at the CGS have not reached a consensus on this issue. This book is, quite naturally, the expression of the views of the author, not of the CGS or of Seijo University, but I stress that, for the sake of arriving at a consensus, this book makes a valuable contribution to our understanding of what is at stake when we speak of energy security, a sustainable environment, and peaceful co-existence between nations.

March 28, 2018

Tomiyuki UESGUI
The Director of the Center for Glocal Studies,
Seijo University

Introduction

I have no particularly traumatic experience that turned me into the sort of person who would write a blog and then a book about the nuclear age, but if I can trust the way my mind has constructed a narrative out of fifty years of memories of things nuclear, I find that I was naturally inclined, for reasons still unclear to me, to dwell on this subject. In addition, I have had a few personal experiences that put me close to episodes of nuclear history.

When I was in the fifth grade of elementary school, sometime in the late 1960s, my teacher showed the class a documentary film about the atomic bombing of Hiroshima. It showed graphic footage of the destruction and the victims, and I remember being quite stunned by it, as well as by the fact that no one talked about it afterwards. Perhaps my classmates were just acting cool and unaffected, but it really did seem that for them it was just another obligatory lesson that they had to sit through. It was "in one ear and out the other" as they say. It was only many years later that I learned that the footage in that film had been censored after the war, that even in the 1960s few people had seen it. My teacher must have gone to considerable trouble to obtain it, and it is a mystery to me as to what motivated him to want to show it to a class of ten-year-old children. It certainly wasn't on the prescribed Province of Ontario curriculum for that grade level, but this teacher was working during a brief age of openness when teachers were given a great deal of autonomy.

The film left me stunned that such a destructive force existed and that it had been used against an enemy in warfare. I just couldn't believe such a thing had happened. As I learned more in later years about mutually assured destruction, the hydrogen bomb, and the massive nuclear arsenals in existence, again I was struck by how odd it was that most people could ignore this horror, put it at the back of their minds, and carry on with their lives without doing something collectively about eliminating the danger. How was this ever made acceptable? Eventually, I was one of them in outward appearance, and most of the time, in reality too. No one who knew me would have seen me as particularly concerned with anti-nuclear activism. I learned to get on with my life. People were aware of the danger,

but the ethos of the time, after the failed revolution of the 1960s, was to "get your kicks before the whole shithouse goes up in flames," as Jim Morrison of The Doors once proclaimed to an audience.

Another nuclear-related memory from my childhood was watching my father lose all his teeth in his early thirties, and then seeing him in his forties and fifties undergo multiple surgeries for skin lesions on his face. He knew the skin tumors were related to the x-ray treatments he received for acne in the early 1940s, but I think he never related the treatment to what happened to his teeth. I saw a likely connection only years later when I was reading about what happened to the "Radium Girls," the workers who had used luminescent radium paints in the 1920s before the hazards of radiation were fully understood. My father wasn't a bomb victim, but his case illustrates how millions of people far removed from the sites of the worst nuclear terror have been affected by reckless and over-confident applications of nuclear technology.

In the early 1980s I recall occasionally debating nuclear energy with a friend who took a job in Ontario's nuclear sector, but I never became an activist. I was too busy making all the personal mistakes of my youth, and too concerned with my student loan debt and my precarious employment status to be able to devote myself to political causes I cared about.

Yet the thing about nuclear hazards is that they have a way of reminding you of their existence once in a while, no matter how much you try to forget them. In 1978, the Soviet satellite Cosmos 954 crashed over northern Canada and deposited an undetermined amount of its 50-kg payload of Uranium-235 over 77,000 square miles of land which was, ironically, the location of many of the uranium mines that had fueled the first nuclear weapons. One year later, the Three Mile Island partial meltdown occurred in Pennsylvania. Chernobyl happened in 1986, then a year later I was working in Japan and getting exposed to that country's awakening anti-nuclear movement. All the scandals, incidents and accidents that came in the following decades were predicted in a short book sarcastically entitled *Genpatsu Arigatou* (*Thanks for the Nukes*) which some activists had taken the trouble to translate into English. That information scared me away for a while, but I was back in Japan in 1994 where I settled into the air-conditioned nightmare, the cold comfort of being plugged into all that neon prosperity fueled by "cheap and abundant electricity."

In the passing years, nuclear news was ever-present in the daily papers and evening television news in Japan. The criticality accident at Tokaimura happened in 1999. There were constant scandals in "the nuclear village" over cover-ups and false documentation. An earthquake in 2007

damaged the Kashiwazaki-Kariwa nuclear power plant, causing it to close while TEPCO tried to understand why fault lines had suddenly appeared in places they were not supposed to be. Then the big one happened—the first ever earthquake-tsunami-meltdown syndrome (*genpatsu shinsai*) that the seismologist Katsuhiko Ishibashi had been warning about since 1997.

I was in Toronto with my wife and children on the day the tsunami struck northeast Japan. I was preparing to return to my teaching job in Japan after a year of leave, so our relatively minor traumatic experience of this event was to spend the next month wondering if our life in Japan was over. During those weeks there was a lot of conflicting and uncertain information. How badly had the food and water supply been contaminated? Was reactor four's spent fuel pool going to collapse and force an evacuation of Tokyo too? Was the Japanese government seriously thinking about continuing with nuclear energy, or was that a joke?

Eventually, we decided to go back to our jobs and our home in Chiba, but not because we dismissed the risks and found the situation acceptable. I would have preferred to have had steady employment in a clean environment, but I knew by that time that Canada would not be kind to a fifty-two-year-old unemployed teacher who had been out of the country for eighteen years.

When I considered all the nuclear-themed events I had observed during my lifetime, and that I was spending most of my adult life in Japan, a nation obviously cursed now with legacy of nuclear contamination, I felt like it was a matter of my being chosen, rather than of my choosing to write this book. I don't know why my fifth grade teacher brought that film to class, but perhaps it was best that I just assume that I was the one kid in the class he was hoping to make an impression on. We put memories together to make up stories we tell about our lives, and I know this is what I am doing here, but this is my best explanation of why I wrote this book.

In the spring of 2011, I obsessively followed news, blogs and social media about the *genpatsu shinsai*. I was discussing it in emails all the time, and when I got tired of doing that I decided it would be more efficient to write everything I had to say on a blog and let my friends and family read it there. I called it *Nuclear Free by 2045* (www.nf2045.blogspot.com) thinking that an appealing goal might be found in the idea of ending nuclear terror a century after it began on July 16, 1945 in Alamogordo, New Mexico. The president of Kazakhstan later took up the same idea as a deadline for abolishing nuclear weapons, but not nuclear reactors.

Within a few weeks the readership was slowly growing, and within a year I had been interviewed on a couple podcasts and I had developed

correspondences and friendships with several people from around the world. By the fall of 2016, the blog had registered 200,000 page views—not enough to change the world, but this had a lot more impact than my obscure journal articles on language teaching. This sort of writing felt more meaningful than the game of academic publishing for an audience that never reached more than a few dozen people.

The articles included in this book are a selection of revised and updated blog posts chosen according to various criteria—reader responses, my evaluation of them, relevance to ongoing issues, and whether they hold up in the absence of photos, videos and longer citations that were possible on the blog. The blog was freely accessible and non-commercial, so a lot of material that was on the blog doesn't appear in the book because of copyright considerations. I believe that some of the best blog posts were translations I wrote about the French nuclear sector and French nuclear tests in Polynesia, but again for copyright considerations, these are not in the book, either.

The book is divided into three sections:

1. Articles that relate nuclear issues to works of literature, cinema and popular music
2. Articles primarily about nuclear energy
3. Articles primarily about nuclear weapons

Most of the chapters are written in academic style with numerous endnotes, but I never tried to deal with this subject as an objective and detached researcher. My voice and the first person pronoun appear throughout. Everyone who writes about nuclear technology has a bias formed on the basis of a chosen value system. It is not possible to say objectively that it is dangerous or safe. The only objective reality is that the sun will burn out someday and life on earth will end, but whatever humans do before that time in managing their environment will be based on values and choices. The blog this book was derived from argues for the abolition of both civilian and military applications of nuclear technology. The research I did and the sources I brought together are used in my best attempt to convince readers that abolition is a moral imperative.

I have had many doubts about whether writing serves anything more than a therapeutic purpose. Perhaps I should have been out on the streets more often joining the protests, or been at the temporary shelters up north working as a volunteer after the tsunami. Perhaps I should have quit my job and stopped working in a society that continues to elect political parties that

favor restarting nuclear reactors. What purpose can writing serve, especially now when every reader is also a writer on social media platforms?

One reason to write is that for society to change, the ideas in people's heads have to change, and that is something that perhaps only long-form writing can achieve. 1000-word news reports and media soundbites are not going to cause a paradigm shift. Several looming ecological crises demand immediate revolutionary change, but in the countries that need to change, the majority of people are not ready or willing. These are not yet revolutionary times. If my writing has added anything to the weight that will tip the scales, then it was worth it.

About the Chapter Endnotes

At the time the book was published, hyperlinks in the endnotes had been checked and updated, but there is no guarantee the sources will remain available.

PART ONE:
CINEMA, LITERATURE AND POPULAR CULTURE

Top : *The painter Taro Okamoto said his Myth of Tomorrow "depicts the instant of an atomic bomb explosion." It was installed in Shibuya Station, Tokyo, in 2008.*

Bottom: *In the spring of 2011, a group of anonymous artists added a panel depicting the Fukushima-Daiichi meltdowns to the bottom right corner of the mural. It was quickly removed.*

1. Don Quixote and the Hyperboloid Cooling Towers

Don Quixote is greater today than he was in Cervantes's womb... The parody has become a paragon. …[He] looms so wonderfully above the skyline of literature, a gaunt giant on a lean nag, that the book lives and will live through his sheer vitality... He stands for everything that is gentle, forlorn, pure, unselfish, and gallant.
-Vladimir Nabokov [1]

When I started my blog about nuclear history, with a title that quixotically asked the world to establish a nuclear-free world by the year 2045 (a century after the first atomic bombs exploded), I created an image for my homepage in which I altered Pablo Picasso's 1955 sketch *Don Quixote* to overshadow the renowned windmill with the hyperboloid cooling towers of a nuclear power plant. The reference might be obvious for those with a knowledge of classic literature, but it probably requires some elaboration in this age when so many have been told to follow an

education in the arid realm of STEM: science, technology, engineering and mathematics. Their stems lack roots, but they can find some perhaps in the time when Cervantes' great novel was written in the dying days of another age of technological "triumph."

Don Quixote is the fictional errant knight created by Miguel de Cervantes in two works of fiction, *The Ingenious Gentleman Don Quixote of La Mancha Part 1* (1605) and *Part 2* (1615). Spain had just spent a century plundering the silver of the new world, but the galleon trade had corrupted the nobility, caused global financial chaos, and ultimately weakened the Spanish empire. Carlos Fuentes described it as "a country that has conquered and plundered and built a New World in the Americas and returns, exhausted." [2]

Don Quixote tells the story of a late middle-aged estate owner who, having read too many romantic tales of chivalric knights, seeks greater meaning in life by setting out in search of adventure with his servant and sidekick, Sancho Panza. As the road story unfolds, Don Quixote must see every mundane encounter through a lens of delusion in order to make it meet his expectation of adventure and his need to do good. Imagination must test reality, or reality must test imagination.

Part 1 was a literary success that Cervantes added to ten years later with *Part 2*, and with it he gave the Western canon some of its earliest meta-fiction before there was a word for it (Shakespeare's play within the play appeared in the same decade). In the contemporary era, we have become accustomed to the blend of mockery and pathos we see in reality TV "characters," and we know that real gangsters watch the fictional Silvio from the television drama The Sopranos doing an imitation of Al Pacino from the fictional movie *The Godfather Part 3*. Before all this, in the early seventeenth century, Cervantes had his hero in *Part 2* living in a world in which everyone he meets has read *Part 1*, and his celebrity as the foolish, errant knight is what leads him to be invited by real aristocrats to a real castle for their mocking amusement and his humiliation.

In the castle, Don Quixote is finally living the dream, but it is here that he eventually becomes aware that only his make-believe at the country inn, which he took for a castle, has lived up to his ideals. Life with true aristocrats has shown him their treachery. After all, the noble baron turns out to be a greater fake than the deluded knight. It is revealed by his servants that he is hopelessly in debt to the rising merchant class. As Don Quixote wakes up from his illusions, the aristocrats are disillusioned as well, for they have been slow to realize that they needed Don Quixote more than he needed them. He possessed the ideals they lacked in themselves.

As the reviewer Richard Eder put it, “Seeking to toy with him, they are toyed with, just as readers have been ever since.” [3]

In a review of the latest English translation by Edith Grossman, the Mexican novelist Carlos Fuentes wrote:

> The illusion comes crashing down. Books are no longer the grand, imaginative truth that moved Don Quixote through perils without end. So the windmills were not giants. So the armies were only flocks of sheep. So reality is shabby, gray, unarmed... What can Don Quixote do but return home, get into bed, recover his reason and peacefully die? The “impossible dream” is over. No wonder that Dostoyevsky, in his diary, calls *Don Quixote* “the saddest book ever written.” For it is, he adds, “the story of disillusionment.” That Edith Grossman has brought all these levels—and many more—to contemporary life is a major literary achievement. For to read *Don Quixote*, in an increasingly Manichaean world of simplistic Good versus Evil and inquisitorial dogmas, becomes one of the healthiest experiences a modern, democratic citizen can undertake. [4]

The windmills that Don Quixote mistook for giants can be seen in Picasso’s sketch, but I’ve added the hyperboloid cooling towers of a nuclear power plant to the horizon. What does the reworked image mean? Do the cooling towers push aside the windmills as the new evil giants? After all, windmills carry a benign meaning now as renewable sources of electricity. Is it a delusion for one unaccomplished, isolated writer, advancing in years like the old knight himself, to take on the nuclear industry? Or does the image now show the disillusionment, the reality unveiled? While the majority of citizens tilt at their chosen windmills by pursuing their personal dreams, their religions and their favored causes, a larger threat now looms on the horizon—nuclear waste and weapons, or, more generally, all that makes up the debt of ecological destruction that has been left for future generations to deal with.

One could also ask who is really being quixotic in arguments about how to deal with the nuclear legacy. Is it a pipe dream to think the nuclear genie can be put back in the bottle, or are the real dreamers those who think that fallible humanity can manage this technology without destroying what sustains life?

The dreamers remind me also of Don Quixote’s sidekick, Sancho Panza, who is the fool when his master is wise, and wise when his master is the fool. Throughout the story he often forgets, or pretends to forget, that

his master is mad, and he goes along with his delusions, imagining that when Don Quixote prevails, he himself will be rewarded with a fiefdom in Africa that will provide him with an endless bounty of wine, gems and young maidens. It's a boy's dream of getting something for nothing, like electricity too cheap to meter—the dream of having servants at one's command without a Faustian bargain in the deal. Sancho learns, when he actually does become a governor, that there is always a price too steep to pay, and he jumps at the chance to return to his humble home.

Carlos Fuentes said in his review of Grossman's recent translation, "Don Quixote has so many levels of significance that I can set foot on only a couple of them." I leave it to readers to add their own ideas about what the mash-up of the sketch means. [5]

Notes

[1] Vladimir Nabokov, *Vladimir Nabokov: Lectures on Don Quixote*, ed. Fredson Bowers (San Diego: Harcourt Brace Jovanovich, 1983), xix, 28, 112.

[2] Carlos Fuentes, "Tilt," a review Edith Grossman's English translation of Don Quixote by Miguel de Cervantes, *New York Times*, November 2, 2003, http://www.nytimes.com/2003/11/02/books/tilt.html.

[3] Richard Eder, "Beholding Windmills and Wisdom From a New Vantage," *New York Times*, Books of the Times, November 14, 2003, http://www.nytimes.com/2003/11/14/books/books-of-the-times-beholding-windmills-and-wisdom-from-a-new-vantage.html.

[4] Fuentes *op. cit*.

[5] Fuentes *op. cit*.

2. The Nuclear Age in Dylan and the Beats

If you look at all these early performers, they were atom-bomb-fueled… They were fast and furious, their songs were all on the edge. Music was never like that before.
- Bob Dylan, 2007

I learned about atomic weapons and the potential of nuclear war at a young age, and I was sometimes puzzled that people could carry on like the threat didn't exist. Then again, the point is that I was only sometimes puzzled. Most of the time I was getting on with my life, like everyone else. I lived through the Cuban Missile Crisis, Reagan's "Star Wars" initiative, and Chernobyl, but it was the Fukushima meltdowns too close to my home that got my attention and made the nuclear threat unforgettable.

It might seem that most people live as they did before the 1940s, concerned with their families, traditional beliefs, jobs and where to take their next vacation. We hear about close calls like the Cuban Missile Crisis, and bluffs by crazy world leaders like Kim Jong-un or Richard Nixon, that remind us of the dangers of nuclear warfare. There is the occasional nuclear power plant meltdown, but it seems to be impossible for humanity to sustain a persistent awareness that nuclear war, or just a colossal accident in a spent fuel storage pool, could wipe out civilization—and it is probably a good thing that we can put these worries aside. Nonetheless, the awareness is always there at some level and it has had profound effects on history, culture, and consciousness.

The atomic age came with the establishment of the American world economic order. The Bretton Woods agreement set the stage for a dollar-denominated global economy, and that economy was based on military spending and nuclear weapons build-up.

Space exploration, telecommunications research, and computer innovation were all directly or indirectly products of the nuclear arms race. The Soviets and the Chinese were ostensibly not part of this new American

world order, but they had to militarize their societies to keep up with the Americans. The atom bomb changed everything, and it is still at the forefront of the major issues of this century. The intractable conflicts in the Middle East are shaped by who has a nuclear deterrent and who does not.

One of the best ways to understand the impact of the nuclear age is to see how it has affected art and popular culture. Sometimes the influence is explicit, but usually it is implicit in everything around us. The technocratic, militarized security state is present in every work of art. Comic books and science fiction B-movies offer many examples of how nuclear danger couldn't be confronted consciously—it appeared subconsciously as mutant monsters, blobs and aliens. In other cases, it was an explicit element of the story. Whereas traditionally children's stories resorted to magic and spells to give characters special powers, the progress of rational science now provided the transformational power, and, ironically, the superstitious nonsense. A rich comic book and movie franchise was established by the bite of a radioactive spider. Spy novels and popular music are other genres that offer thousands of works with Cold War and nuclear-age themes. These influences on the arts and popular culture have been covered in books such as *The Dragon's Tail: Americans Face the Atomic Age*, [1] and the famous documentary film *Atomic Café*. [2]

There is insufficient space here to cover a wide range of nuclear age art and literature, but the best place to start is at the source, with the writers of the 1940s who grasped how the world had changed and were the first to raise the rebel yell. They influenced everyone who came later in the baby boom generation. These artists saw the wartime alliance with the Soviet Union breaking down and heading in an ominous direction. There were pockets of resistance in the political discourse from former officials in the Roosevelt administration, but these would soon be silenced and pushed out of power. The former vice president, Henry Wallace, made an urgent speech in 1946 trying to steer foreign policy away from confrontation with the Soviet Union:

> The only kind of competition we want with the Soviet Union is to demonstrate that we can raise our standard of living faster during the next 20 years than Russia. We shall compete with Russia in serving the spiritual and physical needs of the common man… Let's make it a clean race, a determined race but above all a peaceful race in the service of humanity… The source of all our mistakes is fear. …Russia fears Anglo-Saxon encirclement. We fear communist penetration. If these fears continue, the day will come when our sons and grandsons

> will pay for these fears with rivers of blood. Out of fear great nations have been acting like cornered beasts, thinking only of survival. …A month ago Mr. Churchill came out for the Anglo-Saxon century. Four years ago I repudiated the American century. Today I repudiate the Anglo-Saxon century with even greater vigor. The common people of the world will not tolerate a recrudescence of imperialism even under enlightened Anglo-Saxon, atomic bomb auspices. The destiny of the English speaking people is to serve the world, not dominate it. [3]

Wallace was soon fired from Truman's cabinet, a demotion which came after having lost the vice presidential nomination at the 1944 Democratic convention, thanks to manipulation of the vote by party bosses. Thus the writers of the late 1940s picked up on the warnings made by progressives like Wallace. William S. Burroughs, who by odd coincidence attended a high school that was later converted to the Los Alamos Laboratory where the first atom bombs were made, said of his own writing years later:

> This is science fiction, but it is science fiction in terms of what is actually here now. I have nova conspiracies, nova police, nova criminals... The virus power manifests itself in many ways: in the construction of nuclear weapons, in practically all existing political systems which are aimed at curtailing inner freedom, that is, at control. It manifests itself in the extreme drabness of everyday life in Western countries. It manifests itself in the ugliness and vulgarity we see on every hand, and of course, it manifests itself in the actual virus illnesses. On the other hand, the partisans are everywhere, of all races and nations. A partisan may simply be defined as any individual who is aware of the enemy, of their methods of operations, and who is actively engaged in combating the enemy. You must learn who and what the enemy is, their weapons and methods of operation. The enemy is in you. [4]

Burroughs' familiars were fellow writers Allen Ginsberg and Jack Kerouac. All of them had lived on both sides of 1945, so they were well positioned to witness how the atom bomb had transformed society. In the Ginsberg biography *American Scream*, Jonah Raskin wrote:

> "Nineteen forty-eight was the crucial postwar year," Ginsberg explained. "It was the turning point. Of course the atom bomb had already gone off in 1945, and Kerouac and Burroughs and I had

> talked about it, but the psychological fallout from the bomb—the consciousness—didn't really hit until 1948. There was the splitting of the atom and the splitting of the old structures of society and also a sense of the inner world splitting up and coming apart." Like many other writers around the world, Ginsberg turned the atom bomb into an all-inclusive metaphor. Everywhere he looked he saw apocalypse and atomization. [5]

Ginsberg believed the bomb had caused a "psychic disturbance" among his friends, fueling their despair and subsequent drug use. In his journals, Kerouac labeled the spiritual crisis the "atomic disease." [6] In his writing and his actions, Kerouac showed no interest in politics, or protests and petitions of any kind. Some said his intent was never to save America but to praise its joys and eulogize it, as if the existence of the atom bomb had doomed it. However, William Burroughs said about his influence, "By their fruits ye shall know them, not by their disclaimers." He believed that Kerouac had inspired a worldwide movement that took his work to the next logical step, an activism which aimed to better the world, not merely fatalistically eulogize it. [7]

Kerouac described his writing as a holy calling, a command from God to "go moan for man" and be "as minute as a seed in the pod" in doing so. [8] Indeed, he may have been one of many humble seeds, for the more powerful forces in the disarmament movement arose later, some secular, some religious such as Plowshares (still spilling blood on nuclear installations in the 21st century) and evangelical Christian groups. It is impossible to know what the alternate history would have been, but it is plausible that nuclear annihilation was averted only because of the resistance of millions of citizens who forced political leaders to step back from the brink. Speaking at the United Nations General Assembly in New York in 2015, Pope Francis echoed Henry Wallace's speech when he declared:

> An ethics and a law based on the threat of mutual destruction—and possibly the destruction of all mankind—are self-contradictory and an affront to the entire framework of the United Nations, which would end up as "nations united by fear and distrust". There is urgent need to work for a world free of nuclear weapons, in full application of the Non-Proliferation Treaty, in letter and spirit, with the goal of a complete prohibition of these weapons. [9]

Even in Kerouac's final year, when his talent and his relevance were

said to have been drowned in terminal stage alcoholism, he could show flashes of wit and a flair for bringing attention to the existential problem that the chattering classes preferred to ignore. In an appearance on William F. Buckley's show *Firing Line* in 1968, [10] he joined a panel discussion seeking a definition of "the hippie movement." One could say that Kerouac was pathetic in this appearance, offending everyone and at times incapable of speech. But even drunk and diminished as he was, he could still play the holy fool. He may have been aware of what was going on but just couldn't stomach the political discourse and the inanity of the questions about hippies and beatniks.

Buckley asked him if the hippie movement was "Adamite" (aspiring to a state of purity like Adam in the Garden,) but Kerouac was confused by this flaunting of obscure vocabulary (a habit of Buckley's that annoyed his critics). He asked with puzzlement, "Adamite? You mean Adam and Eve, or atom? What? Adam and Eve? What's Adamite? They wear their hair long, in layers? Live in caves?"

"Yeah, sort of, and back to nature and..."

"Well, that's alright. We might have to in due time—after the atomite bomb! Haha!"

Buckley flashed a smile, "That was good. Give that man a drink."

So here, even at the end of his road, Kerouac was harkening back to what he had felt in the 1940s on a journey to Mexico City. His evocation of the atom bomb in the final pages of *On the Road* reveals one reason the characters have refused to chase the post-war prosperity on offer in mid-century America. All the preceding delinquency and mad wanderings of these "best minds of a generation," as Ginsberg referred to them, now seem to be explained by a painful consciousness of the destiny of the world. This is also the moment of the story when the narrator becomes conscious of the failure within. They have rebelled against their society, but they are also the flawed products of America now carousing through a foreign land. The search for freedom and God has gone hand in hand with utter irresponsibility. As Burroughs would say, this is the recognition that the virus is in them too. Behind them lies a trail of abandoned wives and children, not to mention a few stolen cars. To the natives coming down from the hills, and the pimps and the women in the whorehouse they visit, they are just yanquis with dollars in their pockets. Kerouac shifts our attention back to where it needs to be, to the aboriginal peoples of the world who have endured and paid the costs of Western civilization's suicidal rivalries:

Strange crossroad towns on top of the world rolled by, with shawled

> Indians watching us from under hatbrims and rebozos. All had their hands outstretched. They had come down from the backmountains and higher places to hold forth their hands for something they thought civilization could offer and they never dreamed the sadness and poor broken delusion of it. They didn't know that a bomb had come that could crack all our bridges and banks and reduce them to jumbles like the avalanche heap, and we would be as poor as them someday and stretching out our hands in the samesame way. [11]

Bob Dylan was inspired by *On the Road* before he hit the road on his famous trek from Minnesota to Greenwich Village, and Alan Ginsberg later befriended him when he recognized him as an heir to the Beat poets. Dylan spoke about the effect of the nuclear age on music in an interview with Jann Wenner in *Rolling Stone* magazine in 2007:

> It wouldn't have made sense to talk to somebody back then [in the 1920s and 1930s], to ask him, "What was it like in the late 1800s or 1900s?" It wouldn't have interested anybody. But for some reason, the 1950s and 1960s interest people now. A part of the reason, if not the whole reason, is the atom bomb. The atom bomb fueled the entire world that came after it. It showed that indiscriminate killing and indiscriminate homicide on a mass level was possible… I'm sure that fueled all aspects of society. I know it gave rise to the music we were playing. If you look at all these early performers, they were atom-bomb-fueled. Jerry Lee [Great Balls of Fire], Carl Perkins [Blue Suede Shoes], Buddy Holly [*Rave On*], Elvis [*Shake, Rattle and Roll*], Gene Vincent [*Be-Bop-A-Lula*], Eddie Cochran [*Summertime Blues*]… They were fast and furious, their songs were all on the edge. Music was never like that before. Lyrically, you had the blues singers, but Ma Rainey wasn't singing about, nobody was singing with that type of fire and destruction. They paid a heavy price for that, because obviously the older generation took notice and kind of got rid of them as quickly as they could recognize them. Jerry Lee got ostracized, Chuck Berry went to jail, Elvis, of course, we know what happened to him. Buddy Holly in a plane crash, Little Richard, all that stuff.
>
> *Wenner: Then in this new record [Modern Times], you're still dealing with the cultural effects of the bomb?*
>
> I think so. [12]

Dylan was reminding us of the socially disruptive power of the bomb that was first noticed in the late 1940s. This view of the world passed from the Beat Generation, to Dylan, then to the rock music of the 1960s. Pete Townshend of The Who looked back on the era in the same way as Dylan, in an interview with Barbara Walters and others on the TV talk program *The View*, in 2012:

> As a young kid, walking around in my neighborhood, all of the older boys had been told… "Here's a gun, go and kill the enemy." We had none of that. What we had was, "There's this bomb. We dropped it in on Japan. War is over. We now have an even bigger one. The Russians have it. We're all doomed." That was what I grew up with. So in a sense, the sound of the war, the sound of the bombers—I wanted my music to speak of that. That was the umbrella, the cloud that we grew up in in West London. And I know you guys had it too, so when we brought our music to America—although your situation wasn't as acutely bad immediately after the war—the one thing that triggered was the anger and the revolution and the reaction in the music. It really chimed with our audience here. [13]

Dylan and Townshend are not saying here that everyone was thinking directly about Armageddon all the time, or that Elvis was an avid reader of *The Bulletin of Atomic Scientists*. None of the songs on *Modern Times*, and hardly any other music of the last sixty years, is explicitly concerned with nuclear arms. They are about characters living in this world where things have changed, where there are direct and indirect effects of the atom bomb throughout our culture.

As the music became "fast and furious," so did the pace of social change. If further examples of the modern interest in this era are needed, consider the present popularity of cable television series like *Mad Men* (set in the early 1960s) and *The Americans* (set in the dying days of the Cold War), or the fact that my freshman students in Japan listen to 1970s progressive rock, or even Bob Dylan sometimes. There is still intense interest in these decades that made the modern world.

After the atomic bomb, people were on the move in the perpetually militarized, mobilized and technological security state. Jack Kerouac was *On the Road* and Allan Ginsberg was *Howl*ing. People became much more inclined to question the authority and tradition that were filling the atmosphere with nuclear fallout. By the time the first post-war generation

came of age, everything was being questioned. The establishment pushed back hard, but the Cold War unraveled in unexpected ways regardless. The danger seemed to be resolved, but it never really was. The present destruction of Syria is seldom recognized as a post-communist resurgence of the Cold War, a proxy war that could escalate into something much worse under more reckless leadership.

In spite of the first Cold War having apparently ended in 1989, thousands of nuclear weapons are still ready to launch within thirty minutes. Barack Obama has a Nobel Peace Prize for once having said some fine words about nuclear disarmament, but since receiving this prize he has achieved nothing on this issue. America backed out of the Anti-Ballistic Missile Treaty in 2002, and nuclear arms reductions have been stalled since the 1990s. Meanwhile, the US and NATO have expanded eastward toward Russia while at the same time perversely calling the country encroached upon not an enemy but a new "adversary." China is antagonized in a similar fashion when the US Secretary of Defense talks about defending "freedom of the seas" in waters 10,000 kilometers from North America.

In addition to the threat of nuclear war, the leftovers of the civilian nuclear project might be enough to cause a global catastrophe in slow motion. Seventy years of nuclear waste has piled up with no place to go. Hundreds of aging nuclear power plants will need to be decommissioned in the coming decades, and it would be naïve to think there won't be another level 7, or an off-the-scale disaster at one or more of them before they are safely put to rest.

Returning to Dylan, it is worth noting that his catalog contains numerous songs on the subjects of politics, war, decline and apocalypse. These compositions include *Chimes of Freedom, Desolation Row, High Water, It's All Good, It's Alright Ma, Let Me Die in My Footsteps, Man of Peace, Masters of War, Political World, Slow Train, Talking World War III Blues, With God on Our Side, The Times They Are a-Changin,' and A Hard Rain's A-Gonna Fall*. The lyrics of Hard Rain, excerpted below, are some of the most explicitly apocalyptic of Dylan's songs:

I've stepped in the middle of seven sad forests
I've been out in front of a dozen dead oceans
I've been ten thousand miles in the mouth of a graveyard
And it's a hard, and it's a hard, it's a hard, and it's a hard
And it's a hard rain's a gonna fall

Because of these lines, and because the song was written at the height

of Cold War tensions in the early 1960s, many people thought the "hard rain" referred to a nuclear fallout rain. Dylan denied this in an interview when he said:

> No, it's not atomic rain, it's just a hard rain. It isn't the fallout rain. I mean some sort of end that's just gotta happen... In the last verse, when I say, 'the pellets of poison are flooding the waters', that means all the lies that people get told on their radios and in their newspapers. [14]

"Some sort of end that's just gotta happen." These few words explain much about where Dylan went with his music in the years that followed. He stopped writing the genre of "protest" songs he had invented, and refused to speak for causes or take sides in ideological battles. He lived with his family in seclusion in upstate New York during the height of the anti-Vietnam war movement, and later turned to religion. Like Kerouac, he seemed to be more concerned now with celebrating the life and art of the common man, and eulogizing a world he had concluded was doomed, as well as with preparing himself for the world to come. By the end of the century, Bob Dylan's 30th studio album *Time Out of Mind* was infused with these themes, especially one with a line that says everything: Tryin' to get to heaven before they close the door. In these songs there is no hint of politics or activism, but the line implies a reason for that door closing. To be welcomed in heaven, we would have to save the place we've already been given.

Notes

[1] Robert A. Jacobs, *The Dragon's Tail: Americans Face the Atomic Age* (Amherst: University of Massachusetts Press, 2010).

[2] Jane Loader, Kevin Rafferty, Pierce Rafferty (directors), *The Atomic Café*, Libra Films, 1982.

[3] Henry Wallace, April 12, 1946, RG 40 (Department of Commerce); Energy 1, General Records of the Department of Commerce, Office of the Secretary, General Correspondence; Box 1074, File "104251/6" (2 of 7), National Archives, Washington, D.C., in *The Untold History of the United States*, Oliver Stone and Peter Kuznick (London: Edbury Press, 2013), ch. 5.

[4] Allen Hibbard (Editor), *Conversations with William S. Burroughs* (University Press of Mississippi, 2000), 12.

[5] John Raskin, *American Scream: Allen Ginsberg's Howl and the Making of the Beat Generation* (University of California Press, 2004). Ginsberg's concern with the nuclear threat continued throughout his life as he participated in protests in the 1970s at the Rocky Flats, Colorado plutonium pit factory which inspired his poem *Plutonian Ode*.

[6] Mark Sayers, *The Road Trip that Changed the World* (Moody Publishers, 2012), 57.

[7] Richard Lerner and Lewis MacAdams (directors), *What Happened to Kerouac* (1986; New Yorker Films).

[8] Jack Kerouac, *Visions of Cody*, (McGraw-Hill, 1972).

[9] "Full text of Pope Francis' speech to United Nations," *PBS Newshour*, September 25, 2015, https://www.pbs.org/newshour/world/full-text-pope-francis-speech-united-nations.

[10] William F. Buckley (Host), *Firing Line, The Hippies*, Season 3, Episode 32 (September 4, 1968; National Educational Television).

[11] Jack Kerouac, *On the Road: The Original Scroll* (Penguin Books, 1951, 2007), 398.

[12] Jan S. Wenner, "The Long View," *Bob Dylan: 40 Years of Rolling Stone Interviews*, 69-75, 2013. Originally published in *Rolling Stone*, Vol. 1025-1026, May 3-17, 2007.

[13] "Pete Townshend on 'Who I Am,'" *The View*, ABC Television, October 8, 2012.

[14] Jonathan Cott (Editor), *Bob Dylan: The Essential Interviews* (New York: Wenner Books, 2006), 7-9.

3. Alpha and Beta Particles Shoot Horses, Don't They?

The title of this chapter is a reference to the 1935 novel by Horace McCoy, *They Shoot Horses, Don't They?* and the 1969 film adaptation by Sidney Pollack. In the story, a Depression-era dance marathon, based on a real phenomenon of the time, is a sadistic spectacle that preys on the desperation of the participants who compete for the big prize of $1,500. The competitors are forced to destroy their bodies and turn on each other to elbow their way to the final, but in the end the prize is deceptively small after the contest owner makes his deductions for expenses. When the male half of the winning couple is asked by his female dance partner—her soul and body destroyed by the Depression and the contest—to help her commit suicide, he existentially considers the act no different from the shooting of lame horses once they are a burden to their owners and no longer of any profitable use.

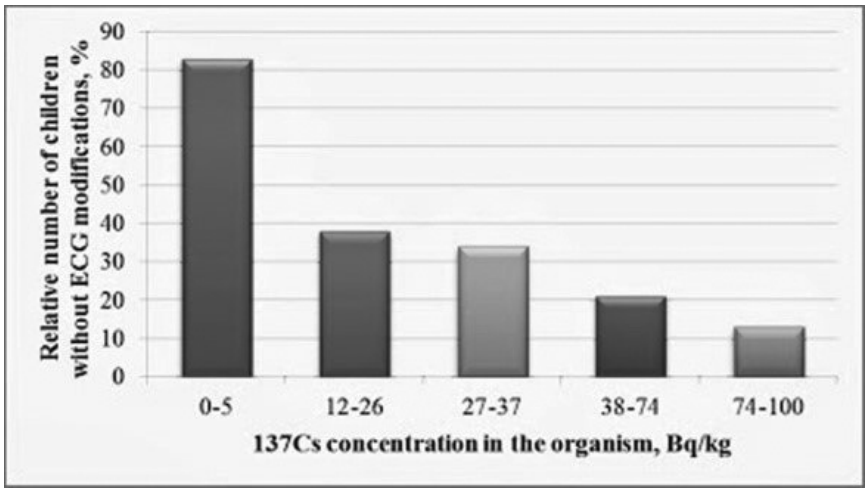
The story is a fairly obvious and blunt allegory for the workings of capitalism, and the allusion to the story here is made to connect it to the disposability of Fukushima victims, the dashed dreams of Japan's national energy policy of the late 20th century, and to a horse breeder in Fukushima,.

A report in the *Guardian* [1] told the story of horses in Iitate, Fukushima, a town which suffered some of the highest levels of fallout from the nuclear disaster:

> As Iitate's population plummeted in the spring of 2011, Hosokawa managed to find new homes for more than 80 of his horses. Then, in January this year [2013], he noticed that several among the 30 that remained [in Iitate], mainly foals, had become unsteady on their feet. Within weeks, 16 had died in mysterious circumstances. Autopsies on four of the horses found no evidence of disease and tests revealed caesium levels at 200 becquerels per kilo—twice as high as the government-set safety limit for agricultural produce, but not high enough to immediately threaten their health.

The last sentence of this paragraph reveals an important distortion or misunderstanding by the reporter. There is a significant difference between the risk posed to the *consumer* of cesium-contaminated flesh and the *owner* of cesium-contaminated flesh. A foal, or any other young animal, would suffer serious developmental problems with this body-load of cesium in every kilogram of flesh. But a person who consumed this flesh, probably much less than a kilogram of it, would suffer no long-term load of cesium in his own body.

As it turns out, scientists who have studied whole-body burdens of cesium have found that levels much below 200 becquerels per kilogram can cause problems, especially to fetuses, infants, and children. A report by Chris Busby, a professor and scientist who specializes in low-dose ionising radiation, used this chart to illustrate the impact on children in a region of Belarus affected by Chernobyl fallout [2]:



ECG abnormalities in children related to 137Cs level in the body.

Belarussian scientist Yuri Bandazhevsky demonstrated the damaging effects of cesium on the fetal development of pigs, and also studied the high rate of heart abnormalities among children affected by Chernobyl. [3] Furthermore, medical practitioners are becoming more aware of the link between heart disease and medical radiation exposures [4]. The Harvard Medical School stated in one report, “Radiation therapy can induce heart disease if any part of the heart is exposed to radiation. Problems can occur several years after exposure and include accelerated coronary artery

disease, stiffening of the heart muscle, inflammation and thickening of the pericardial sac, problems with electrical conduction, or damage to heart valves." [5]

So it should be no surprise that young animals in Fukushima were experiencing a higher rate of death. The story about Mr. Hosokawa's horses touched a nerve because we see other species as more blameless than humans, but it's also an indirect, and thus permissible, way of pointing the finger at official abuse of the young humans of Fukushima.

To remind us all just how impossible it is for the public to look squarely at this crime, we had around the same time the "scandal" of an independent anti-nuclear politician expressing an appeal to the Emperor to speak up for the children of Fukushima. Taro Yamamoto, who sits in the upper house of the Diet (the national legislature), expressed his appeal in a note he passed to the Emperor at a garden party. [6] Almost all other national politicians, media, and citizens being spoon-fed their views by mainstream news organizations agreed that this was a serious breach of protocol. Under the post-WWII constitution, the Emperor is supposed to be completely removed from politics. Of course, it wouldn't be right if all politicians made a habit of appealing to the Emperor this way, but was this an exceptional circumstance? There is an argument to be made that there was nothing wrong with Mr. Yamamoto's action, if the matter is exceptionally urgent, and if this action differs little from the other ways that politicians exploit the Emperor for their own purposes. In any case, if the Emperor is just a powerless figurehead, what's the harm in a little exchange of opinion?

If we go along with the view that the Emperor must be removed from politics, this implies that the Emperor was involved in politics before and during the war, and thus shared responsibility for it. Indeed, under the Meiji Constitution, the Emperor did possess significant power over the elected Diet. However, after the war, the ruling party, with American support, worked relentlessly to construct a narrative of an Emperor who was powerless to order or prevent any of the war crimes that others paid the penalties for. This view could never stand up to logic, for if the Emperor had been powerless, he would not have had the authority to surrender. But if he was blameless then, when he was deeply involved in all decisions and discussions with various organs of government and the military, what is the harm in him now hearing various viewpoints on the present condition of the country?

More importantly, we should consider what is being discussed. Was Mr. Yamamoto's letter concerned with "politics," or was it concerned with a unique, unprecedented emergency that the bureaucracy and government

had been unable to respond to? Do desperate times call for desperate measures, some way of finding a respected person whose voice could prick the nation's conscience? And what do we make of a conscience that is so concerned with protocol rather than the mistreatment of the people affected by the Fukushima Dai-ichi catastrophe?

This attempt to communicate with the Emperor came to nothing, but we can at least say that the Emperor is just a man, and Japan is a society that allows people to freely exchange their views. The Emperor can choose to respond, or not respond, but surely he might welcome the prospect of a dialogue that goes beyond the pleasantries of every other exchange he has with his subjects. After all, it was only a few days before, during his first visit ever to Minamata to speak to the victims of mercury poisoning, that the Emperor declared, "I became convinced anew that we should work together to build a society in which people can live truthfully." [7] Those sound like the words of a lonely man who wants some meaningful connection with his fellow citizens. Mr. Yamamoto took him at his word, for living truthfully would require an honest exchange of opinions, whether one is talking to the Emperor or anyone else.

When it comes to involving the Emperor in "politics," he has been frequently trotted out by the Japanese government for political purposes, often to suit the agenda of the ruling Liberal Democratic Party. For instance, in the spring of 2013, when Prime Minister Shinzo Abe decided, for the first time ever, to commemorate the anniversary of the end of the U.S. Occupation in 1952 with the "Restoration of Sovereignty Day," the Emperor was invited to this staged event. The obvious purpose of it was to ready national discourse for a revision of the constitution. Later in the same year, Princess Hisako was brought to Buenos Aires to lobby for the 2020 Olympics bid, something which was the "politics" of the LDP platform. These actions were met with mild criticism at the time, but there was nothing to match the livid protests and demands for resignation that came after Mr. Yamamoto dared to communicate something more than a pleasantry to the Emperor.

Finally, the notion that the ruling party knows how to keep its politics out of various institutions is proven false in another issue. On the same day that Mr. Yamamoto's letter to the Emperor was a source of consternation in the media, the *Mainichi* printed an editorial that remarked, "PM Abe's fingerprints all over NHK board nominations," noting that four people nominated to take empty seats on the national "independent" broadcaster's board have personal ties to the prime minister. [8]

Notes

[1] Justin McCurry, "Fukushima horse breeder braves high radiation levels to care for animals," *Guardian*, October 27, 2013, https://www.theguardian.com/environment/2013/oct/27/fukushima-horse-breeder-radiation-animals.

[2] Chris Busby, "Radiation exposure and heart attacks in children of Fukushima," 2011. *European Commission on Radiological Risk*, http://harmonicslife.net/Blog/2011/GensBlog/20111004/caesiumheart_v1.0_E.pdf.

[3] G.S. Bandazhevskaya, V.B. Nesterenko, V.I. Babenko, I.V. Babenko, T.V. Yerkovich, Y.I. Bandazhevsky, "Relationship between Caesium (137Cs) load, cardiovascular symptoms, and source of food in 'Chernobyl' children—preliminary observations after intake of oral apple pectin." *Swiss Medical Weekly* 134 (2004): 725-729, http://www.smw.ch/docs/archive200x/2004/49/smw-10219.html.

[4] Mark P. Little, Anna Gola, Ioanna Tzoulaki, "A Model of Cardiovascular Disease Giving a Plausible Mechanism for the Effect of Fractionated Low-Dose Ionizing Radiation Exposure," *PLoS Computational Biology* 5(10) (2009), e1000539, DOI:10.1371/journal.pcbi.1000539.

[5] Harvard Medical School, "Cancer treatments may harm the heart," *Harvard Heart Letter*, August 2012, http://www.health.harvard.edu/heart-health/cancer-treatments-may-harm-the-heart.

[6] "Letter to Emperor Incident Sparking Huge Debate," *Asahi Shimbun*, November 2, 2013. The article is no longer hosted on the publisher's website. Another report on the topic by NPR is still available as of February 2018: https://www.npr.org/sections/parallels/2013/11/12/244765746/the-emperors-code-breach-of-protocol-spurs-debate-in-japan.

[7] "Emperor seeks to end discrimination against Minamata disease victims," *Asahi Shimbun*, October 28, 2013. Article no longer hosted on the publisher's website.

[8] "Editorial: PM Abe's Fingerprints all over NHK Board Nominations," *Mainichi*, November 2, 2013. Article no longer hosted on the publisher's website.

4. LOST After an Earthquake-Tsunami-Nuclear Meltdown Catastrophe

"This city has to survive. It's beautiful. People have to come back. They'll come back one day. They have to. It's a beautiful city. I was just at the stadium. There needs to be children here. There is no life without risks." [1]

People who have been following Japan's reaction to its nuclear crisis have had many moments of dumbfounded, slack-jawed amazement as they hear of plans to move people back into the disaster zone, clean up the enormous levels of radioactive fallout and restore life as it was before—all while three nuclear reactor fuel cores lie in a melted heap and tons more of spent fuel lie in a precarious, exposed state.

This situation is enough to make a person feel like she has awoken in an episode of the sci-fi drama LOST (2004-2010). In that story, the traumatized victims walked dazed and confused in an island paradise that had been uncannily transformed by various technological interventions imposed by previous human intruders. They were slow to figure out that their lives were over, as they obviously must have been after their airplane crash. Several times over the seasons the lead character, Jack, was knocked unconscious and had to awaken each time and make sense of his surroundings while befuddled by each knock on the head. In fact, this was the defining aspect of his character. He was always slow to figure things out, always striving to deny reality, and thus knocking himself out for a lost cause and making poor decisions. He would have fit right in during the nuclear disaster aftermath on "the island" that is Honshu.

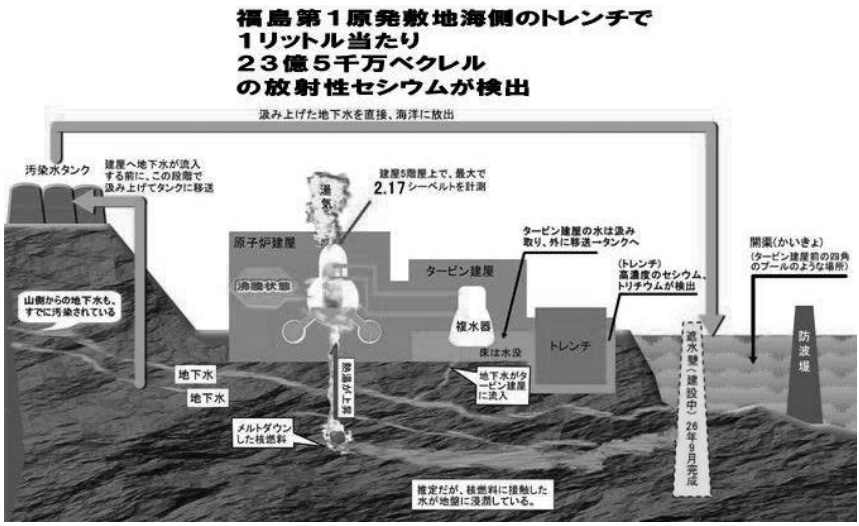
The Japanese government, and many of the residents of Fukushima who are going along with its plans, seem to be in the same state of traumatized denial. They are like a bloodied driver emerging from a car accident who is oblivious to what has happened. He stumbles around and stammers about being late for work and needing to go, becoming all the more confused by the perplexed reactions on people's faces. For the first months, the trauma victims of Japan and Fukushima lived in denial about

what had happened, aided in their delusions by the global nuclear industry, as well as by cynical financial interests and government officials who want to save the economy and the tax base. The pressure came from overseas as well, as the United States and other nuclearized nations needed Japan to continue with its nuclear program in order to sustain the international nuclear program.

The plans so far have all been about cleaning up and restoring the contaminated communities, regardless of how hopeless, expensive and dangerous this will be. These citizens ignore inconvenient facts, such as the fact that the young, educated and wealthy are not coming back, which assures that these communities will be populated only by the elderly. They are abetted by cynical exploiters in the bureaucracy who want to spend the nation's finances on such an ill-advised "revitalization" that is most concerned with saving the corporations that build nuclear plants or sell electricity from them.

While there is much evidence that adults may be able to live in low level radiation with an "acceptable" risk of being affected, the risks for embryos are much higher. The people who are in a rush to rebuild communities in Fukushima haven't stopped to ponder the futility of resettling in towns where the soil is condemned and procreation involves an unacceptable risk of birth defects and lifelong harm to health.

One can go on at length with a comparison of how the people of Japan are like the lost souls in LOST. The cleanup workers at the Daiichi plant resemble the bewildered workmen and the survivors who were enslaved into a legacy of 1970s technology and experimentation gone terribly wrong. They are down in the metaphorical hatch desperately pressing a button to save their world, or maybe just performing a fool's errand, but they don't dare stop pressing that button. They carry out compartmentalized tasks without knowing who is in charge, who to trust, or what the master plan is, if there ever was one. The survivors fight among each other about whether to leave or stay, while they simultaneously fight and form alliances with "others" and "other others" who come from afar with mysterious agendas. There are weird health effects and malevolent, intangible forces. Like radiation, the mysterious force on the island can heal or kill, but most crucially, it puts a stop to procreation by killing all pregnant women. There is a 19th century shipwreck in the middle of the jungle named the Black Rock, which, incidentally, is what Dene elders in northern Canada warned their people to stay away from. Their black rock refers to the black ore which the outsiders found was rich in uranium.



A diagram depicting groundwater flow through the ruins of Fukushima-Daiichi. Will people of the future be able to comprehend this?

Alliances in LOST shift from day to day. Certain people are deemed expendable for the greater purpose of achieving the opaque goals of the competing groups. The original motivation for humans coming to the island was to master the limitless energy supply hidden within it, but one thing the inhabitants must do first is understand why humans cannot reproduce on the island. Whatever the secret of the energy source is, the problem must be resolved if humans are to have a future on the island. As the story proceeds, the survivors learn that in the 1950s the American military brought a hydrogen bomb to test on the island, but they were chased off, with their undetonated bomb left behind to cause future problems. They also learn in the final episodes that the island is a battleground between God and the Devil. God works on the island to contain the Devil on it, to keep him from breaking free to roam the world. He has his chosen representatives to intervene on his behalf and guide others, but God himself cannot intervene for the humans he has given free will. By the end of the tale, God is "very disappointed" in mankind. The intrusions by outsiders, who have come in pursuit of the island's energy supply, have threatened to give the final victory to the Devil, now poised to finally get off the island. What started off looking like science fiction is now a religious parable as well.

In similar ways the people of Japan and the workers at the Daiichi plant are pawns in a game between competing powers that they cannot comprehend, in a battle with technology that has escaped human control. They must look at their various levels of government, the IAEA, the WHO, and corporations like TEPCO, Toshiba, Westinghouse, and Areva as a bewildering parade of suspicious strangers arrived from over the horizon. The similarities between "the island" and the island where Fukushima is located can be stretched too far, but they illustrate how LOST was more than just the usual light entertainment offered up on prime time television. It had moments of brilliance when, between advertisements for technological gadgets, it subverted the institutions that produce entertainment, depicting humanity's tortured relationship with its technology.

LOST also managed to reflect the horrible direction of American foreign policy at the time in a way that mainstream television news wouldn't. When the cunning Benjamin Linus, leader of "the Others" in the island's multi-sided civil war, liked to declare, "We're the good guys," the allusion to President Bush's use of the same phrase was clear to all. In several episodes, the characters resort to terror and torture to manipulate the behavior of their enemies. The debates held among them were a reflection of what was happening for real in American society.

Another analogy with LOST is in the way the survivors split over having false hope and blind faith or making rational choices to cut losses. An article in the *New York Times* in December, 2011 illustrated how the Japanese are slowly waking up the extent of the catastrophe that has fallen on them.

Critics of the revitalization effort were growing more vocal. They believed it "… could end up as perhaps the biggest of Japan's white-elephant public works projects—and yet another example of post-disaster Japan reverting to the wasteful ways that have crippled economic growth for two decades." [2] The trial cleanups had stalled because there was no place to put the removed soil, and even after "decontamination," more radioactive particles blow down from the forests and hillsides. Levels remain above international safety standards for long-term habitation.

The director of the Radioisotope Center at the University of Tokyo, Tatsuhiko Kodama, said, "I believe it is possible to save Fukushima, but many evacuated residents must accept that it won't happen in their lifetimes." Thousands of buildings have to be scrubbed and people will have to wait while "… the topsoil from an area the size of Connecticut is replaced. Even forested mountains will probably need to be decontaminated, which might necessitate clear-cutting and literally scraping them clean."

Sign posted on a used car for sale in Narita, Chiba Prefecture, Japan, six months after the meltdowns at Fukushima-Daiichi. News of contaminated cars being dumped on the market prompted dealers to test for radiation and label cars as below a radiation safety limit.

Japanese officials said that they don't have the luxury of evacuating a wider area as was done in Chernobyl because the area covers 3% of the land mass of Japan. A reasonable question to ask here is "Only 3%?" If that's all, people could easily move to the remaining 97%. Japan is a densely populated country, but its rural areas have been depopulated in recent decades. There is a lot of unused real estate, in big cities and rural areas, and room for the affected 2% of the population to move elsewhere. Besides, the decision to evacuate should be decided by the level of contamination, not the availability of land. If land really is so scarce, the logical next question is whether Japan can continue with the risks of nuclear energy.

Pride was on display in one quote in the *NYT* article that showed what will probably prove to be a fatal arrogance in the Japanese mindset. One man seems to suggest that those backward and impoverished Ukrainians and Russians were just not up to the task of dealing with Chernobyl. "We are different from Chernobyl," said Toshitsuna Watanabe, 64, the mayor of Okuma, one of the towns that was evacuated. "We are determined to go back. Japan has the will and the technology to do this."

It is stunning that this senior citizen and community leader made an unfounded claim about the nation's technological capacities and saw only his own need to return to his home, while he ignores the interests of young people who wisely choose to stay away. The young are expected to go

along with the elders so that they can spend their old age on their native, radioactive soil.

The article mentions the long roots of local families in the land, and the sympathy they have gained throughout Japan, but now "… quiet resistance has begun to grow, both among those who were displaced and those who fear the country will need to sacrifice too much without guarantees that a multi-billion-dollar cleanup will provide enough protection. Soothing pronouncements by local governments and academics about the eventual ability to live safely near the ruined plant can seem to be based on little more than hope."

In one town visited by the *NYT* writer, there was an obvious split in opinion between the old and the young, especially the young families with children. One old-timer said, "Smoking cigarettes is more dangerous than radiation. We can make Okuma a model to the world of how to restore a community after a nuclear accident,"–as if that would be something to be proud of. One might argue that the best demonstration of what happens after a nuclear accident of this scale is the establishment of an evacuation zone that cannot be inhabited for 10,000 years. One does not want to create a moral hazard or an impression that a nuclear disaster is a casual thing that can be cleaned up easily.

To conclude, the article quoted Professor Kodama saying, "… victory would be hollow, and short-lived if young people did not return… Saving Fukushima requires not just money and effort, but also faith. There is no point if only older people go back."

As time has passed, it has become more obvious that young people are not going to go back. Rural communities struggle to retain the younger generation even under normal conditions. In addition, not only young people, but intelligent people, and people with any options to live elsewhere, will not go back.

There was one memorable scene in an early episode of LOST when Jack is desperately trying to save a patient who has been killed during a surgery botched by his drunken father. He labors over the patient long past the point when it has become obvious that she is gone. His father stands behind him insisting repeatedly, "It's over, Jack. Call it." In all other disasters, there comes a time to call it.

Yes, as Professor Kodama says, it's a matter of faith, and I am losing faith that the Japanese people have the collective intelligence to save themselves and call it for what it is. Wake up, and give up on this notion that the contaminated regions of Fukushima can be restored or that this island nation can continue with its nuclear program. Accept the reality

of what happens when you lose control of a nuclear power plant. As a foreigner watching on the sidelines, with a passport I can use to go live somewhere else, that is a harsh judgment to make, but Japanese critics have come to a similar conclusion. The long-time anti-nuclear critic Takashi Hirose wrote after the disaster:

When politicians come from abroad with the intention of helping, the result is no more than a revolting solidarity among politicians and a string of falsehoods tossed off to the media. If the Japanese people continue to believe this kind of low-level news reporting and keep their mouths shut, the world will pass on by and leave the country and its industry behind and isolated. If the people don't come to grips with the seriousness of the danger of the ongoing nuclear disaster and show the decisiveness to put an end to the nation's nuclear power program immediately, the world will have no reason to believe in Japanese intelligence. [3]

That was written in 2011. It's over. When is someone going to call it?

These two photos illustrate the impact of the Fukushima-Daiichi meltdowns on global consciousness.

An episode of a Japanese news program morning show discussed the alarming state of the ruined nuclear plant. The video spread widely on Youtube and volunteer translators made it famous internationally. Here the French subtitles state, "The real cause of the accident at Fukushima has still not been identified."

Graffiti in Toronto, Canada claims, "Fukushima is here" because a GE-Hitachi factory in Toronto produces uranium fuel.

Notes

[1] Thomas Johnson (Director), *The True Battle of Chernobyl*, (M Way Films / Discovery Communications, 2006), 16:00 ~. These words were spoken by one of the elderly evacuees from Pripyat on the day of departure. No one ever came back.

[2] Martin Fackler, "Japan Split on Hope for Vast Radiation Cleanup," *New York Times*, December 6, 2011, http://www.nytimes.com/2011/12/07/world/asia/japans-huge-nuclear-cleanup-makes-returning-home-a-goal.html.

[3] Takashi Hirose, *Fukushima Meltdown: The World's First Earthquake-Tsunami-Nuclear Disaster* (*fukushima genpatsu merutodaun*) (Asahi Shimbun Publications, 2011). The English translation was published independently and sold only as an e-book, with permission of the original publisher.

5. Nora Ephron, *Silkwood*, and the Great American Romcom

When author, screenwriter, and film director Nora Ephron passed away in 2012, there were numerous homages in the media. At the time, I was struck by an omission within the abundance of obituaries. It indicated the way the American chattering class has abandoned class consciousness in favor identity politics.

Because this book is concerned with nuclear and environmental issues, the work that is of interest in Nora Ephron's career is *Silkwood* (1983), which was her debut as a screenwriter (sharing a writing credit with Alice Arlen, to be directed by Mike Nichols) about the real life working-class hero of the atomic energy sector, Karen Silkwood, who died in 1974 in mysterious circumstances, leaving behind a body that was highly contaminated with plutonium.

Every film that Ephron wrote or directed afterward was substantially different. All of them were departures from the themes of working class and environmental justice found in *Silkwood*. They dealt instead with the career challenges and romantic foibles of the educated upper-middle class. In the 1970s there were many films that focused on the working class, such as *Norma Rae, Blue Collar, Saturday Night Fever, Taxi Driver, 9 to 5*, but since the Reagan years there have been fewer films about the working poor, and Ephron was adept at writing scripts that followed the trend. This transition in Ephron's career coincided with progressive politics moving away from workers' struggles toward fractured identity politics, to the point that the struggle seemed to be all about professional women breaking free of their men and breaking through the glass ceiling. Working class Midwestern women like Karen Silkwood were yesterday's news, too radical for Oklahoma and too unsophisticated for Manhattan.

It is Ephron's later films that were remembered and commented on in the obituaries, while *Silkwood* received just passing mention as an early step toward her destiny: mastery of the great American romantic comedy genre. We easily forget Meryl Streep (as Karen Silkwood) having

plutonium contamination scrubbed off her body, but we love to remember Meg Ryan's fake orgasm in *When Harry Met Sally*. Interestingly, however, the term "Silkwood shower" found its way into pop culture lingo in the way it became a metaphor for wanting to wash away the memory of a regrettable interpersonal encounter. Grim and deadly serious social problems got pushed into the collective unconscious while their faint memories emerged as this casual joking metaphor in which plutonium contamination is equated with any yukky experience.

Sleepless in Seattle took place in New York and Seattle, and this aspect of the film highlights in another way the abandonment of the themes and characters encountered in *Silkwood*. In *Sleepless*, we see exactly why everything between the coasts is known as "flyover country." The characters fly over the country repeatedly, while nothing takes place in the great cultural wasteland in between. *Silkwood*, on the other hand, was set in Oklahoma in a nuclear fuel-processing facility. The work was menial, and the land outside the plant was a toxic dump where contaminated trucks had been buried. The staff, struggling to hold onto union certification, were exposed to health risks and not fully informed about the dangers of what they were handling. No romance here, and Tom Hanks isn't going to ride into town to buy the company and capture the heart of the heroine struggling within.

Karen Silkwood appears not as a sympathetic career woman stifled by a cheating husband or the glass ceiling, but as flawed and difficult to sympathize with. She has lost custody of her children, for reasons that the film does not try to portray as unjust. She shares a house with her boyfriend and a lesbian roommate. She is her own worst enemy. She drinks and smokes, makes lewd jokes, and thus has numerous traits sure to set her apart from the mainstream of rural Oklahoma. Nonetheless, the writers provide a hint of the romcoms to come by portraying her as thwarted by what was expected of young girls growing up in Texas.

She makes a gradual transformation into a union activist fighting to uncover safety violations that threaten to have the fuel processing facility shut down. This character development is the saving grace of the story, as it was Ephron's and Arlen's talent that made the characters sympathetic and the transformation believable. Toward the end of her life, Karen Silkwood is found to be contaminated with a level of plutonium that is too high to be accidental. The film ends ambiguously as her car goes off the road on the evening she was going to pass important information to a *New York Times* reporter. It is possible that she was contaminated by co-workers who didn't want the plant to close, or by a supervisor who despised her for at

first rebuffing him, and later for her activism. Or it could have been sinister elements within the corporation and the military industrial complex. She might have been forced off the road, or it might have been an accident. The film draws no conclusions.

Film critic Roger Ebert was glad that the film left these questions unanswered and that it didn't turn out to be a boilerplate drama about evil corporate overlords. He wrote that *Silkwood* was a

> …story of some American workers. They happen to work in a Kerr-McGee nuclear plant in Oklahoma, making plutonium fuel rods for nuclear reactors. But they could just as easily be working in a Southern textile mill… or on an assembly line, or for the Chicago public schools. The movie isn't about plutonium, it's about the American working class. Its villains aren't monsters; they're organization men, labor union hotshots and people afraid of losing their jobs. [1]

Ebert found that the acting and the growth of the characters were the finest elements of the story.

In contrast, another critic, David Sterritt, found this lack of specificity and focus on the personalities to be the film's weakness. It was "a fine example of Hollywood's love-hate attitude toward timely and controversial subject matter... [it] browses so long through the dirty linen of Silkwood's personal life" to avoid being polemical and answering the questions about why she died. [2]

Sterritt, writing in 1984, was onto something here, but he could have added some information about what was really at issue: the hundreds of thousands of people affected since the 1940s by working with atomic weapons and nuclear fuel. Official recognition of the health disaster was just starting to emerge in the 1980s, and *Silkwood* really didn't do as much as it could have for the cause. The pressure came from the victims themselves, with little help from the mass media. *The Radiation Exposure Compensation Act* was passed in 1990. This was followed in 2000 by *Executive Order 13179*, and by *the Energy Employees Occupational Illness Compensation Program Act of 2000*, which has been amended a couple of times since to provide expanded coverage.

But you wouldn't have known from watching *Silkwood* anything about the scope of the environmental contamination and the health impacts on thousands of American workers, soldiers and civilians. Millions of Americans who watched *Silkwood* didn't have to contemplate the horrific scale of nuclear contamination. Nor did they have to contemplate the fact

that EPA staff were, in the 1980s, coming to grips with "national sacrifice zones" [3] as big as some national parks that might be impossible to clean up (the stalled efforts at superfund sites like Hanford have proven this to be true [4]).

Although it is considered a "serious" film, or a "message" film by American standards, *Silkwood* is rather timid, but perhaps at the extreme of where a Hollywood film can go. The filmmakers would say that they told the story the way they wanted to tell it, under no obligation to make it a modern history lesson for the public.

It seems Ephron never wanted to go back to this dangerous edge. Her writing partner in this film, Alice Arlen, never achieved the same iconic status as Ephron (does anyone remember *Alamo Bay, Cookie, The Weight of Water, A Thief of Time, or Then She Found Me?*). Although Arlen went in the same direction toward romances and quirky comedies, Ephron went on to claim the mantle of the romcom genre.

Perhaps other writers have been too polite to mention this, or they miss the connection with the plutonium workers in *Silkwood* who had children dying of leukemia—one can never say anything definitive about the causes of a case of cancer, so it is perhaps tactless to bring this up, but it needs to be said. Nora Ephron died of leukemia, a disease known to be caused (not only) by radiation. The particular form of leukemia that she had was acute myeloid leukemia, and it was extremely rare. *The New York Times* reported that the cause in most cases is unknown, but 10% of cases are known to be caused by previous treatments of chemotherapy or radiation therapy for other kinds of cancer. [5] So, in other words, these are the only known causes. The remaining 90% of cases could always be dismissed as naturally occurring mutations, but it is reasonable to theorize that a good part of the remaining cases are caused by unidentified chemical and radiological contamination.

We should wonder whether Ephron herself absorbed some extra plutonium (above what everyone alive in the nuclear age has in their flesh and bones) years ago while she was on location in Oklahoma. Her story is an echo of the story of the making of the film *The Conqueror* in St. George, Utah, in 1953, when an unforeseen wind change brought bomb-test fallout on the town. Years later, about 90 members of the cast and crew fell sick with cancer, three times as many as statistically indicated for the crew's size. [6] *The Conqueror* is known in some quarters as the movie that killed John Wayne. The story behind the making of *The Conqueror* would make an interesting film itself, but so far there hasn't been a single Hollywood film about the veterans and civilians who were victims of nuclear weapons

tests. It would surely be a story about much more than just "some American workers."

Notes

[1] Roger Ebert, review of *Silkwood*, *Chicago Sun-Times*, December 14, 1983, http://www.rogerebert.com/reviews/silkwood-1983.

[2] David Sterritt, "Silkwood: good intentions are fogged by ambiguity," *Christian Science Monitor*, January 5, 1984, https://www.csmonitor.com/1984/0105/010506.html.

[3] Keith Schneider, "Dying Nuclear Plants Give Birth to New Problems," *New York Times*,
October 31, 1988, http://www.nytimes.com/1988/10/31/us/dying-nuclear-plants-give-birth-to-new-problems.html.

[4] "At Hanford, Some of the nation's dirtiest secrets not so secret," *Enformable*, December 11, 2011, http://enformable.com/2011/12/at-hanford-some-of-the-nations-dirtiest-secrets-not-so-secret/.

[5] Pam Belluck, "Ephron's Leukemia Was Uncommon and Complicated," *New York Times*, June 28, 2012, http://www.nytimes.com/2012/06/28/science/nora-ephrons-leukemia-was-an-uncommon-and-complicated-type.html.

[6] Rory Carroll, "Hollywood and the downwinders still grapple with nuclear fallout," *Guardian*, June 6, 2015, https://www.theguardian.com/film/2015/jun/06/downwinders-nuclear-fallout-hollywood-john-wayne.

6. Henry Miller's 1940 Road Trip: *The Air-Conditioned Nightmare*

The future always seems to happen in Japan first. It was the first, and hopefully last, country to be struck with nuclear weapons. It was the first to be attacked with karaoke music. Japan has given the world otaku culture—video games, manga, maid cafes, 48-member female pop bands—the cultural products of and for a newly evolved, more autistic, infantilized kind of human being, a new species more object-oriented than people-oriented, more detached from reality, incapable of emotional response to outrages unfolding in their environment.

The latest item on this list of firsts is the fact that Japan is now the first industrialized country to hit the wall in terms of its energy supply. With no native resources, it decided to go nuclear fifty years ago, and for a while it worked. The nuclear buildup was an economic boon as it created jobs within its own sector and supplied the energy needed by industry. Economic growth took off. Nuclear fuel was believed to be carbon free, and relatively cheap, so it helped the national balance of payments. But building 54 nuclear reactors on a land of earthquakes and tsunamis was never a good idea, and now the dream has died. Nuclear is no longer a viable option. Even if Japan continues running a few plants, other earthquakes are sure to bring further problems, so the whole industry is in inevitable decline. Meanwhile, importing fossil fuels will just continue to run up a trade deficit that adds to the vicious cycle of industrial decline and contributes to global warming. Alternative energy supplies might be a solution, but for now they are over the horizon.

Public discourse on this dilemma is reaching new levels of alarm. The problem is no longer a remote disaster that might start in a few decades. It is happening all around us, but in a slow motion fashion that makes it difficult for some people to feel the sense of crisis. The writer Paul Gilding sees it as a coming war, but a different kind of war than what we have ever known:

> We can choose this moment of crisis to ask and answer the big

> questions of society's evolution—like, what do we want to be when we grow up, when we move past this bumbling adolescence where we think there are no limits and suffer delusions of immortality? Well it's time to grow up, to be wiser, to be calmer, to be more considered. Like generations before us, we'll be growing up in war—not a war between civilizations, but a war for civilization, for the extraordinary opportunity to build a society which is stronger and happier and plans on staying around into middle age. [1]

While contemplating such things a few weeks ago on a hot summer day (35 degrees centigrade and 70% humidity at my home in Narita, Japan), the phrase "the air-conditioned nightmare" came to mind. It is the fitting description for what this country faces every day now. We need the cool air to maintain our lifestyles and do the jobs that put food in our bellies. Junior high school students, already on the education treadmill on which they mindlessly join the chase of "good" jobs in air-conditioned factories and offices, need the cool air in the summer cram schools they attend. Air conditioning enabled places like Japan, Southern China, Taiwan, Thailand, Vietnam and the American South to catch up to the industrialized North. And we are all stuck here, unable to see any way to climb down out of the air-conditioned nightmare.

But where did this phrase come from? I knew I had heard it before, but had no idea who coined it. It turned out that it was the title of a 1945 travelogue by Henry Miller. [1] I must have come across it when I read his novels *Tropic of Cancer, Black Spring* and *Tropic of Capricorn* in the early 1980s, or it may just be a phrase used elsewhere as it became an effective way to allude to our alienation from nature.

Henry Miller lived as an expatriate American writer in Paris in the 1930s, and returned to his native New York in 1939. With war breaking out in Europe, he had returned only reluctantly, and did not have a nice re-acquaintance with his homeland. Nonetheless, on a trip that must have inspired Jack Kerouac a few years later, he set out on an automobile trip across the country, writing of the grim American landscape he found in Depression-era America on the eve of world war. He found only some hopeful signs for the future of humanity in a few exceptional individuals whom he encountered.

There is no trace here of "the greatest generation" that defeated fascist enemies on two fronts in Europe and Asia, except some sympathy for the young people who would be called on to do the fighting. Instead, Miller saw dictators and tyrants on all sides, saying "We have our own dictator,

only he is hydra-headed." (p. 18) What is striking for the modern reader is to see how many passages of *The Air-Conditioned Nightmare* resemble writing from The Occupy Movement and the environmental movement. The seeds of discontent were really born in the post-WWI era, when capitalism accelerated in the new age of the automobile, the airplane and the atom. Lately, it all seems to have been discovered anew by a generation that had no awareness of the disasters that befall capitalist economies from time to time.

Of course, Miller wasn't the first to be discontented with modernity, but he seems to have had a keen sense of the arrival of a new kind of global dread that would follow the next war. He seems to have been scientifically illiterate (he was clueless even about what was under the hood of his car) and he couldn't have known about the Manhattan Project and the coming atomic age as he drove through the New Mexico desert, but he knew something awful was in store:

> A great change had come over America, no doubt about that. There were greater ones coming, I felt certain. We were only witnessing the prelude to something unimaginable. Everything was cock-eyed, and getting more and more so. Maybe we would end up on all fours, gibbering like baboons. Something disastrous was in store—everybody felt it. Yes, America had changed. The lack of resilience, the feeling of hopelessness, the resignation, the skepticism, the defeatism—I could scarcely believe my ears at first. And over it all that same veneer of fatuous optimism—only now decidedly cracked. (p.13)

Seventy years before Gilding produced the quote above about ecological catastrophe, Miller preferred to talk not about war between dictators and democrats, but man's coming war with his own nature—the need to invent a better form of social organization than the materialism offered by both communism and capitalism:

> A new world is not made simply by trying to forget the old. A new world is made with a new spirit, with new values. Our world may have begun that way, but today it is caricatural. Our world is a world of things. It is made up of comforts and luxuries, or else the desire for them. What we dread most, in facing the impending debacle, is that we shall be obliged to give up our gew-gaws, our gadgets, all the little comforts which have made us so uncomfortable. There is nothing brave, chivalrous, heroic or magnanimous about our attitude. We are

not peaceful souls; we are smug, timid, queasy and quaky. (p. 17)

We are accustomed to think of ourselves as an emancipated people; we say that we are democratic, liberty-loving, free of prejudices and hatred. This is the melting-pot, the seat of a great human experiment. Beautiful words, full of noble, idealistic sentiment. Actually we are a vulgar, pushing mob whose passions are easily mobilized by demagogues, newspaper men, religious quacks, agitators and such like. To call this a society of free peoples is blasphemous. What have we to offer the world beside the superabundant loot which we recklessly plunder from the earth under the maniacal delusion that this insane activity represents progress and enlightenment? The land of opportunity has become the land of senseless sweat and struggle. The goal of all our striving has long been forgotten. We no longer wish to succor the oppressed and homeless; there is no room in this great, empty land for those who, like our forefathers before us, now seek a place of refuge. Millions of men and women are, or were until very recently, on relief, condemned like guinea pigs to a life of forced idleness. The world meanwhile looks to us with a desperation such as it has never known before. Where is the democratic spirit? Where are the leaders?

As Democrats, Republicans, Fascists, Communists, we are all on one level. That is one of the reasons why we wage war so beautifully. We defend with our lives the petty principles that divide us. The common principle, which is the establishment of the empire of man on earth, we never lift a finger to defend. We are frightened of any urge which would lift us out of the muck. We fight only for the status quo, our particular status quo. We battle with heads down and eyes closed. Actually, there never is a status quo, except in the minds of political imbeciles. All is flux. Those who are on the defensive are fighting phantoms.... What is the greatest treason? To question what it is one may be fighting for. (p. 21)

Man in revolt against his own cloying nature—that is real war. And that is a bloodless war which goes on forever, under the peaceful name of evolution. (p. 22)

There are experiments which are made with cunning and precision, because the outcome is divined beforehand. The scientist, for example,

always sets himself soluble problems. But man's experiment is not of this order. The answer to the grand experiment is in the heart. We inhabit a mental world, a labyrinth in whose dark recesses a monster waits to devour us. Thus far we have been moving in mythological dream sequence, finding no solutions because we are posing the wrong questions. We find only what we look for, and we are looking in the wrong place. (p. 22)

… the toiling masses of humanity look with watery eyes to this Paradise where the worker rides to work in his own car… they want the lethal comforts, conveniences, luxuries. And they follow in our footsteps—blindly, heedlessly, recklessly. (p. 33)

The worst is in the process of becoming. It is inside us now. Only we haven't brought it forth. (p. 42)

We tell the story as though man were an innocent victim, a helpless participant in the erratic and unpredictable revolutions of Nature. Perhaps in the past he was. But not any longer. Whatever happens to this earth today is of man's doing. Man has demonstrated that he is master of everything—except his own nature. If yesterday he was a child of nature, today he is a responsible creature. He has reached a point of consciousness which permits him to lie to himself no longer. Destruction now is deliberate, voluntary, self-induced. We are at the node: we can go forward or relapse. We still have the power of choice. Tomorrow we may not. It is because we refuse to make that choice that we are ridden with guilt, all of us, those who are making war and those who are not. We are all filled with murder. We loathe one another. We hate what we look like when we look into one another's eyes. (p. 175)

Why is it that in America the great works of art are all Nature's doing? There were skyscrapers, to be sure, and dams and bridges and concrete highways. All utilitarian. Nowhere in America was there anything comparable to the cathedrals of Europe, the temples of Asia and Egypt–enduring monuments carved out of faith and love and passion. No exaltation, no fervor, no zeal—except to increase business, facilitate transportation, enlarge the domain of ruthless exploitation. The result? A swiftly decaying people, almost a third of them pauperized, the more intelligent and affluent ones practicing race suicide, the underdogs becoming more and more unruly, more

> criminal-minded, more degenerate and degraded in every way.
>
> The men of the future will look upon the relics of this age as we now look upon the artifacts of the Stone Age. We are mental dinosaurs. We lumber along heavy-footed, dull-witted, unimaginative amidst miracles to which we are impervious. All our inventions and discoveries lead to annihilation. (p. 228)

Other passages from *The Air-Conditioned Nightmare* resonate nowadays for millions of expatriates and migrants who have experienced being uprooted and feeling alienated wherever they find themselves. We want to speak about the world as citizens of it, not as representatives of governments or stale cultural molds and stereotypes. We who live in the aftermath of the Fukushima Daiichi disaster want to speak about it, and want Japanese to speak about it, as a problem of humanity.

> Though I became what is called an expatriate, I look upon the world not as a partisan of this country or that but as an inhabitant of the globe. That I happened to be born here is no reason why the American way of life should seem the best. That I chose to live in Paris is no reason why I should pay with my life for the errors of the French politicians. To be a victim of one's own mistakes is bad enough, but to be a victim of the other fellow's mistakes as well is too much. (p. 17)
>
> The only artists who were not leading a dog's life were the commercial artists; they had the beautiful homes, beautiful brushes, beautiful models. The others were living like ex-convicts. The impression was confirmed and deepened as I travelled along. America is no place for an artist: to be an artist is to be a moral leper, an economic misfit, a social liability. A corn-fed hog enjoys a better life than a creative writer, painter or musician. (p. 16)
>
> I was frequently reminded of the fact that I was an expatriate, often in an unpleasant way. The expatriate had come to be looked upon as an escapist.... Nobody thought of calling a man an escapist in the old days; it was the natural, proper, fitting thing to do, go to Europe, I mean. (p. 16)
>
> I had the misfortune to be nourished by the dreams and visions of great Americans—the poets and the seers. Some other breed of man has

> won out. The world which is in the making fills me with dread.... It is a... false progress, a progress which stinks. It is a world cluttered with useless objects which men and women, in order to be exploited and degraded, are taught to regard as useful. The dreamer whose dreams are non-utilitarian has no place in this world. Whatever does not lend itself to being bought and sold, whether in the realm of things, ideas, principles, dreams or hopes, is debarred. In this world the poet is anathema, the thinker a fool, the artist an escapist, the man of vision a criminal. (p. 24)

> If it takes a calamity such as war to awaken and transform us, well and good, so be it. Let us see now if the unemployed will be put to work and the poor properly clothed, housed and fed; let us see if the rich will be stripped of their booty and made to endure the privations and sufferings of the ordinary citizen; let us see if all the workers of America, regardless of class, ability or usefulness, can be persuaded to accept a common wage; let us see if the people can voice their wishes in direct fashion, without the intercession, the distortion, and the bungling of politicians; let us see if we can create a real democracy in place of the fake one we have been finally roused to defend; let us see if we can be fair and just to our own kind, to say nothing of the enemy whom we shall doubtless conquer over. (p. 25)

To end, some comments from an itinerant man at the Grand Canyon whom Miller affectionately described as a "desert rat." This voice from seventy years ago is priceless because it sheds light on a loss that modern people are no longer aware of, and it speaks volumes about the beginnings of our reckless endangerment of the planet that sustains us.

> The automobile had done one good thing, he admitted, and that was to break up people's clannishness. But on the other hand, it made people rootless. Everything was too easy—nobody wanted to fight and struggle anymore. Men were getting soft. Nothing could satisfy them anymore. Looking for thrills all the time. Something he couldn't fathom—how they could be soft and cowardly yet not frightened of death. Long as it gave them a thrill, didn't care what happened... He had seen lots of cars turn over in the desert, racing at... a hundred and ten miles an hour. (p. 222)

Notes

[1] Henry Miller, *The Air-Conditioned Nightmare* (New Directions Publishing, 1945).

[2] Paul Guilding, "The Earth is Full," *TED*, February, 2012, https://www.ted.com/talks/paul_gilding_the_earth_is_full?language=en.

7. Review and Discussion: *The Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico*, by Joseph Masco

A superficial understanding of the nuclear era is that it is a series of famous atrocities and disasters that have occurred since 1945. Hiroshima and Nagasaki were the first events, followed by the Cold War showdown that peaked during the Cuban Missile Crisis. Afterwards, there were the accidents at Three Mile Island, Chernobyl and Fukushima. For the majority of people who have no interest in learning what lies behind the headlines, these famous milestones are likely to represent the common knowledge about the nuclear age. Nuclear technology is something that is occasionally terrifying, but it disappears out of everyday consciousness when the news cycle moves on.

Historians and anthropologists who have studied the nuclear era find that this collective amnesia is in itself an interesting aspect of the age because the advent of nuclear weapons was perhaps the most significant and socially disruptive change in human history. In *The Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico*, anthropologist Joseph Masco wrote about the American nuclear program, in particular how it unfolded in the birthplace of the atomic era. In this study, he illustrated quite effectively that the nuclear weapons program has had, and will have far into the future, deep economic, ecological, cultural and psychological impacts which, ironically, appear to be inversely proportional to the collective awareness of them.

The US nuclear complex covers a total of 36,000 square miles, the size of the state of Indiana. $6 trillion was spent on it over 50 years, and the US government conducted 1,149 test detonations between 1945 and 1992, 942 within the continental United States. The cost of remediating and containing the damage caused by the nuclear age will cost far more because

of the duration of nuclear wastes into the distant future. The psychological and social impacts of these facts become apparent when we gain awareness of how they force us to change the way we understand citizenship, national identity, and relationships to the land. What does it mean for politicians to talk about enduring American values, or the lasting integrity of the nation, when the government must also plan for a time one thousand or fifty thousand years into the future when a country called the USA will no longer exist? What does it mean for individuals to realize that their pursuit of security and comfort makes the present and the distant future less secure and less comfortable? Humanity never before had to consider much besides the near past and near future. In terms of our genetic evolution, we are hard-wired to be altruistic toward our immediate social group and the three or four generations of genetic kin we know during our lifetime.

Masco contends that our confrontation with the dangers of radiation creates a strange rupture in the collective and the individual psyche. Adapting a Freudian concept, he labels this phenomenon the "nuclear uncanny." Freud himself struggled to find a definition of *unheimlich* (translated from German as *uncanny*) which satisfied the theoretical concept he had in mind. In the essay *The Uncanny*, he wrote:

> Many people experience the feeling [of uncanny] in the highest degree in relation to death and dead bodies, to the return of the dead, and to spirits and ghosts... some languages in use today can only render the German expression "an *unheimlich* house" by "a haunted house." [1]

Masco stressed this sense of haunting when he wrote that the uncanny refers to sensory experience becoming haunted and untrustworthy, and to the return of the repressed. There seems to be a further uncanny irony here in the fact that the scientific age did much to dispel irrational beliefs but then revealed a fearsome secret of the universe that would be dreaded like a malevolent ghost. The hidden energy from the birth of the solar system was revealed to be—one might say "repressed"—below the earth's surface in uranium ore. Because radiation is intangible and dangerous, doing its harm imperceptibly over time and distance, people react to it just as they would to a perceived supernatural force. Thus radiation evokes what can be called the nuclear uncanny.

Nuclear Borderlands describes the many ways by which the nuclear age has made our times uncannily out of joint. I would add that the uncanny might also include the instances of irony, paradox and Kafkaesque absurdity one encounters in the nuclear era. The summary below covers some

memorable aspects of the *Nuclear Borderlands*; however, I advise readers that this is only a cursory overview of a book that deserves to be read in its entirety.

Uncanny No. 1
Rule 1: Spend $trillions on nuclear weapons
Rule 2: Hope you never have to use them

The description of absurd paradoxes begins with the Los Alamos scientists who have to manage the aging nuclear arsenal without ever being able to test a nuclear weapon. The generation that experienced the visceral effects of above-ground tests is no longer working, and many of the scientists employed today are too young to remember even underground testing, which ended in 1992. All they can do now is manage the existing weapons, maintaining all their parts but never testing a weapon to see if it actually works. They say it is like having to maintain an old car in perfect condition but never being allowed to turn the key. The goal is to make the weapons functional, but if they ever needed to really find out if they functioned, that would be horrible because it would mean nuclear apocalypse had begun.

If children constantly receive contradictory messages from their parents, they will grow up to be neurotic, and so one might expect that the contradictions of the nuclear weapons program would create neuroses in the people who live with its trappings. Maintaining the weapons stockpile and providing long-term stewardship of the nuclear waste legacy have become a techno-scientific fetish. When Los Alamos scientists talk about nuclear weapons they adopt human and animal metaphors to humanize the maintenance of weapons of mass destruction. For example, the old weapons receive "geriatric care." Like a human face, nuclear core implosions are better when they are symmetrical.

Masco notes that many people consider the $6 trillion as money well spent because of what is called the "Tang© effect," the term which describes the famous freeze-dried orange juice that was invented, as is widely and wrongly believed, because astronauts had to take orange juice to the moon. From the arms race came other benefits such as rocket and satellite technology, computers, the Internet, interstate highways, and nuclear medicine. However, this retroactive reasoning is illogical because it dismisses alternative courses that history could have followed, and it is an arbitrary judgment to say that it was essential for the human race to have Internet access. Tang© was, in fact, first made by General Foods in 1957.

It was later adopted *by* NASA but it was never made *for* NASA. With this myth out of the way, it seems reasonable to believe that computers and the Internet might have appeared sooner or later regardless of the impetus given by the budget for nuclear weapons. And if they hadn't been invented, so what? Would life not be worth living?

The absurdity of retroactive justification is easier to see if we note that Hitler restored the German economy and made the trains to Auschwitz run on time, but no one would justify Nazi atrocities today by celebrating the technical achievements of WWII Germany. In fact, if Americans and Russians want to celebrate how they produced ballistic missiles, they really have to thank the German scientists who developed the technology during the Nazi period.

Uncanny No. 2
Claims on the Land, Claims on Upward Mobility

Los Alamos and northern New Mexico were occupied by Native Americans for thousands of years before the Spanish colonized the area in the late 16th century. It was later part of Mexico after the War of Independence ended in 1821, then it recently became American territory in 1848. The Spanish settlers lived apart from industrial development in a barter economy until the American takeover, so they had worked out how to co-exist relatively well with the Pueblo Indians. That stability began to unravel as America expanded westward and Spanish landholders were cheated out of their titles, even though some of them still possess deeds granted by Spain that go back "only to 1714" (original Spanish settlement occurred in 1598). The upper Rio Grande area was so isolated that linguists from Spain came in the 20th century to observe the last remnants of the language as it sounded in the time of Cervantes (1547-1616). Local historian Larry Torres stresses that the arrivals from Spain were so early that settlers never experienced the Renaissance or the Enlightenment, so they went directly to the nuclear age when the Manhattan Project came to Los Alamos.

By the time the US military came to expropriate land for the Manhattan Project, both the Pueblo Indians and the Spanish/Mexican inhabitants were impoverished. To this day, many of them have positive, but also ambivalent, feelings about the Los Alamos National Laboratory (LANL). The lab provided jobs in the wage economy, and the Indians and the Spanish inhabitants served in WWII. Because they accepted the narrative that said "the bombs ended the war," they were proud of the

American achievement.

This is why there is nothing straightforward about how the history of Los Alamos is contested. Within each group there are proponents and opponents, and sometimes the same person who is grateful for economic opportunity is also the person who resents the fact that his ethnic group has always done the menial work at Los Alamos, or that too many of his relatives have died too early of cancer. Sometimes the disadvantaged groups make alliances with the environmental and anti-nuclear groups, which tend to be made up of recent arrivals in New Mexico. At other times they resent the way environmentalists persisted with legal challenges to land use that took no account of what traditional inhabitants wanted. Some Indian groups threatened to accept above-ground storage of nuclear waste, but they did so as a bargaining tactic against elements that would disallow them from operating casinos. The bottom line for everyone is that there is no going back to living off the land. Everyone needs to be part of the cash economy.

One of Masco's more interesting findings was a video made by some of the Hispanic workers who did cleanup work in Area G of Los Alamos. The video shows a ruptured canister in a dump, and the panicked reaction of the staff to the leak. The class distinctions of the workplace are on display when the white Anglo scientists come to the scene in full protective gear to take measurements of the radioactivity while the Hispanic workers stand in the same spot in regular attire. Later in the video, one of the workers recounts his memory of what happened to the remains of Karen Silkwood, the famous whistleblower who was contaminated with plutonium on the job and later died in a mysterious car crash. Some of her remains came to the lab to be put in a tissue registry, but a refrigerator failed and the stored tissues were dumped unceremoniously with other waste, according to the witness in the video.

Racism and disregard for human rights were evident in other aspects of operations at Los Alamos. Implosion experiments required a stand-in for plutonium, and for this lanthanum 140 (half-life 1.6 days) was used. The experiments were conducted only when the winds blew in the right direction, away from the town of Los Alamos but over "uninhabited" land where there were Pueblo Indians. In another case, for research done on the absorption of radionuclides in the body, tissue samples were collected without consent from deceased members of the Los Alamos community.

Uncanny No. 3
Contested Narratives

At the end of the Cold War, a great deal of information was declassified, and this gave rise to a strong anti-nuclear movement which was now armed with information about environmental contamination, unethical experiments on human subjects, and the health effects suffered by thousands of nuclear workers, downwidners and veterans of weapons tests. However, this gave rise to anti-anti-nuclear groups who fought over the way the nuclear legacy would be defined in Los Alamos. For them, the nuclear era had been a positive force because it was the peacemaker that ended WWII and kept the peace during the Cold War.

In 1989, students at an elementary school in Albuquerque planned to build a peace statue which they hoped would be placed in Los Alamos in 1995 to commemorate the 50th anniversary of the atomic bombings. As news of the plan spread and financial contributions poured in, the city council of Los Alamos was forced to vote on whether to allow a space for the statue. By a narrow vote it was rejected. Although the statue displayed no overt ideology other than a wish for peace, the opposing city council members resented that it was an outsiders' project. It smelled of backing from anti-nuclear groups they suspected of wanting to teach that Americans should feel guilty for the attacks on Hiroshima and Nagasaki.

This conflict played out the same way on a national scale when the Smithsonian in Washington tried to create a full-context exhibit about the Enola Gay, the aircraft that dropped the bomb on Hiroshima. After much political interference and lobbying, the plan was rejected in favor of a display of the aircraft devoid of serious historical analysis. The children's peace statue was eventually given a space in a museum in Albuquerque.

In another battle over access to public space, anti-nuclear activists demanded space in the Bradbury Science Museum in Los Alamos in order to teach about the environmental and human costs of nuclear weapons. There had been a previous legal challenge that won similar space at a museum at the Lawrence Livermore National Laboratory, in California, so the Bradbury museum relented and permitted a contrary view to be displayed on a wall that measured all of fifteen by eight feet (4.5m x 2.4m). The comment book became a popular place for visitors to exchange heated views, and by 1995 veterans and former LANL workers had, predictably, demanded and won their own counter-counter-exhibit. Managers of the museum were taken aback by the passions displayed by both sides of the controversy. They seem to have thought that their sterile and apolitical

exhibits extolling the virtues of the technical achievement would satisfy the public.

Uncanny No. 4
Forest Fire = Hiroshima

While Los Alamos citizens and veterans groups insisted that the history of Los Alamos should be presented either as ideologically neutral or as nothing to feel guilty about, the great Cerro Grande forest fire of May 2000 evoked some reactions in them that Sigmund Freud would have found very intriguing. Nothing besides a guilty conscience could have made so many local residents relate the fire to Hiroshima. They readily conflated the two conflagrations, taking the event as a way of making an empathetic connection with the city they were historically linked to. One scientist even did calculations to compare the heat of both events. Another LANL employee said, "We are all thinking of Hiroshima. We know what that was like." Yet aside from being very hot, the two events had nothing in common. The forest fire, horrible though it was, was not an act of human aggression designed to kill thousands of people, and no one died because of it. The forest fire came with no shock wave or radiation, except for the relatively small suspected amounts caused by the release of radionuclides that had accumulated in the forest after years of operations at LANL.

Uncanny No. 5
Are secrets still secrets when millions of citizens have security clearance?

In the closing chapters, *Nuclear Borderlands* posits that the post-9/11 obsession with security was an expansion of what had been established during the Cold War arms race. The national security fetish that arose in the Cold War had a profound influence on all aspects of life while it presented citizens with numerous contradictions, ambiguities and absurdities. Masco wrote, "Secrecy… creates not only hierarchies of power and repression, but also unpredictable social effects, including new kinds of desire, fantasy, paranoia, and, above all, gossip."

As an example, he describes how the rules sought to define in granular detail the permitted number of times a nuclear scientist could have sexual encounters with a foreign national. Security clearances involved investigations of family and friends, and required employees to report on each other. As such regulations piled up, the enemy had become the citizens

who were supposedly being protected. National security became national sacrifice. The security state turned nuclear workers and all citizens into the enemy because public understanding of the weapons, or knowledge of ecological damage and health effects, would threaten the mission.

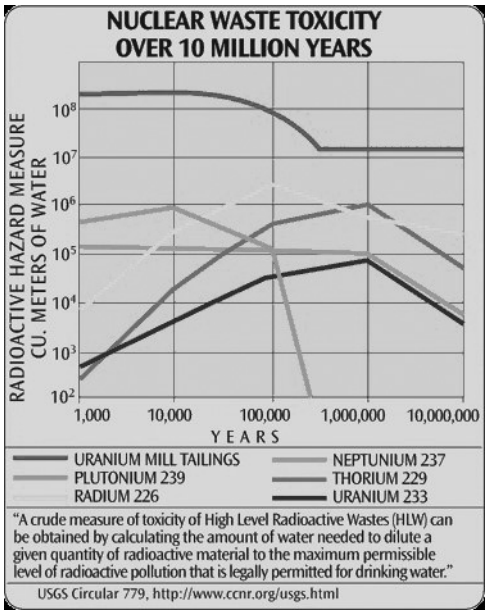
The definition of an act of espionage was also highly contextual. For example, one could not bring an orange or other round objects into the secure work area at LANL because the shape might be a hidden message that a plutonium core under development was spherical rather than ovoid. Yet it was alright to leave the orange in the non-secure area.

The obsession with secrecy led to forgetting that in many cases a government with access to enough resources often overcomes technical obstacles without having to steal secrets. The LANL scientist Wen Ho Lee was accused in the 1990s of giving to the Chinese the secret of how to make an ovoid plutonium core, a significant step allowing for lighter high-yield weapons. China succeeded in testing a bomb with such a core, but American investigators had to admit later that the information Lee allegedly gave was not enough to teach the Chinese how to succeed. Either they got the information by other means, put the pieces of the puzzle together from information that was openly available, or (surprise, surprise) figured it out on their own just as the Americans had.

Lee was eventually exonerated, but the lengthy investigation reignited Cold War paranoia and demotivated many of the scientists working in the nuclear program, especially those who were foreign-born American citizens now aware of the racial profiling that was in effect. In the end, many wondered if the Americans had been played by China. The whole affair served to discourage foreign-born Americans from working in the nuclear program, which might have been China's objective. It is plausible that the Chinese deliberately provoked the Americans into believing a foreign-born national had betrayed them.

The Lee case underscored the essential racism of building nuclear weapons in the first place. They are, after all, deployed in order to kill foreigners. In the process of developing them, anyone who is racially or ideologically different is suspect. Moreover, marginalized minorities are dispossessed when land is taken over to build weapons facilities or they are abused when weapons are tested on their homelands. Just as the Lee case erupted into the news, LANL was hit with lawsuits from Hispanic and indigenous groups over the confiscation of their land in 1942 (note how uncanny it is that the four digits are a rearrangement of the year Columbus landed in America). Once the Cold War was over in the early 1990s and documents were declassified, these long-suppressed grievances came to the surface.

Uncanny No. 6
Long-Term Stewardship



Original source: US Geological Survey 779, https://pubs.er.usgs.gov/publication/cir779

Perhaps nothing produces the sense of uncanny more than a full understanding of the contamination that has been created by the nuclear era. Various regulatory agencies like to soothe the public and their staff with assurances that the waste problem can be dealt with, so they write memos like this recent one by a high official of Canada's Nuclear Safety Commission:

> The recent tailings dam breach that occurred at the Mt. Polley mine in British Columbia on August 4, 2014 has raised awareness of issues associated with tailings impoundments. This is a reminder that vigilance must be maintained by ensuring that tailings dams continue to be properly designed, constructed, operated, maintained and monitored to prevent such occurrences. [2]

Such language avoids mentioning what is actually at stake, for the last

sentence should really continue by stating "… prevent such occurrences *for the next 100,000 years*." However, most often the unpleasant reality is repressed in both internal and public communication.

Scientists have been tasked with guaranteeing something that is utterly unprecedented and probably impossible. They must plan for the perpetual management of a dangerous waste product, and doing so presumes that the task can be handed off in perpetuity to a society that has the required competence and resources.

Alternatively, it is hoped that the wastes can be left in passive storage, requiring no action by future generations, but this cannot be guaranteed either. In February 2014, waste canisters at New Mexico's WIPP storage facility exploded underground after only fifteen years of operation, long before the site was to be sealed for eternity.

Masco found that a bizarre product of the long-term stewardship program was the science fiction that nuclear waste scientists were tasked with writing. They were told to imagine the political and technological changes that might occur over the next few hundred years and plan nuclear waste storage accordingly. The sample that Masco found imagined a 26th century in which the United States no longer existed. It described an American southwest that had become a failed state where people lived in a pre-industrial state of chaos and poverty. Characters in the story find maps and diagrams in the ruins of a laboratory and head out to look for the buried treasure, which is actually the contaminated clothing and equipment that had been buried at WIPP in the 21st century. With this creative writing assignment, the United States government had, perhaps for the first time, officially commissioned government workers to envision the demise of the United States government.

Thus it is that the government, nuclear workers, and eventually all citizens will realize the awesome legacy that has been created. There are contaminated sites being promoted as wildlife refuges simply because this is a convenient way of keeping people from living on them while not admitting the impossibility of restoring them. Another 109 sacrifice zones in the US are so badly contaminated that they can't even be passed off as wildlife habitat. Because the burden stretches out to a practical eternity, the future environmental and health costs, and the costs of maintenance and cleanup are sure to be more than the damage inflicted on enemies and more than the cost of building the nuclear arsenal. The legacy tells us that there will never be a "nuclear-free" world, but there could be a time when we at least stop adding to the problem. Yet among the five nuclear powers,

the same nations that also make up the UN Security Council, none has shown the slightest interest in stopping proliferation by disarming itself and leading the world out of the era of nuclear weapons production.

Uncanny No. 7
Hiding in Plain Sight

Masco concludes his book by recounting the strangeness of his own interactions with people when he talked to them about his project. It was difficult to make publishers interested, and members of the general public were puzzled that there would be anything at all to write about nuclear weapons. In the popular consciousness, the era was over in 1991 when the USSR collapsed, or perhaps earlier when atmospheric testing ended in 1963. The public seemed to equate nuclear dread with ephemeral cultural fads like hippies and Beatlemania. They have their time then they are gone forever.

Writing in 2006, Masco wondered how a $6 trillion-dollar project, which was still very much a going concern, could so easily fade from public awareness. It was clear that it wasn't necessary to have a nuclear war in order for the nuclear arms race to have devastating impacts on society. The effects of "radioactive nation building" were plain to see everywhere. Masco defined them as "the long-term effects of participating in national-cultural logics that mobilize resources in the name of security and community, but that do so in ways that are unsustainable and that create both social and material toxicity." The final uncanny absurdity is that these effects have become the new normal that no one thinks twice about.

It's worth mentioning here that not everyone is convinced that the nuclear program played such a significant role in shaping the modern world. The counter-narrative says that the "nuclear uncanny" is just another fanciful construct of the social sciences. There are those who say that nukes are just another kind of weapon and that the Cold War would have played out in the same way without nuclear weapons. [3] Such critiques tend to be welcomed by the nuclear energy industry which is always eager to make the public think of nuclear technology as something mundane.

Certainly, the war machinery in use in the years just before 1945 was doing a fine job of turning the world upside-down, creating its own "mechanized war uncanny." The byproducts of conventional industries left their own nightmarish legacy of PCBs, dioxin, ozone holes and of course fossil fuel by-products. The Alberta Oil Sands will leave their own giant sacrifice zone. Nonetheless, I don't know how one could see the opening

of the nuclear era as anything less than a quantum leap that goes beyond any comparison with conventional threats. Within ten years there was enough weaponry to send mankind back to the Stone Age in the space of an afternoon, as Einstein famously said. The creation of plutonium and other radioactive elements was pure alchemy, and through weapon testing, mining and nuclear accidents they found their way into the tissues of every living thing on the planet.

Those who would like to make nuclear mundane may just like staking out a contrarian position for the sake of being contrarian. The unfortunate thing about working in counter-factual history is that there are no facts and real events to contend with. I prefer to base my views on the testimony of people who actually witnessed nuclear explosions and lived in the time when they first appeared. Everyone who witnessed a nuclear blast, even people who were proponents of nuclear weapons, was utterly transformed and traumatized by the experience. Robert R. Wilson, a physicist who witnessed the Trinity test, said, "I was a different person from then on." [4] I would bet that the same is true of the societies that have had to live with nuclear weapons since the day after Trinity.

Another review of *Nuclear Borderlands*:

David Kaiser, "In the Shadow of Los Alamos," *American Scientist*, January-February 2007, review of Joseph Masco, *The Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico* (Princeton University Press, 2006), http://www.americanscientist.org/bookshelf/pub/in-the-shadow-of-los-alamos.

Joseph Masco's next book:

Joseph Masco, *The Theater of Operations: National Security Affect from the Cold War to the War on Terror* (Duke University Press, 2014).

Audio: Léopold Lambert interviews Joseph Masco:

"Militarization of Territorial Planning in Cold War USA: A conversation recorded with Joseph Masco," *Archipelago*, July 29, 2014, https://thefunambulist.net/podcast/joseph-masco-militarization-of-territorial-planning-in-cold-war-usa.

Notes

[1] Sigmund Freud, The Uncanny (1919). https://people.emich.edu/acoykenda/uncanny2.htm.

[2] Dene Moore, "Nuclear watchdog requests safety checks after B.C. mine breach," The Canadian Press, August 19, 2014. http://www.ctvnews.ca/canada/nuclear-watchdog-requests-safety-checks-after-b-c-mine-breach-1.1966932.

[3] John Mueller, Atomic obsession: Nuclear alarmism from Hiroshima to Al-Qaeda (New York: Oxford University Press, 2010). In a brief review of this book in Foreign Affairs (reviewed by Lawrence D. Freedman, March/April 2010), the reviewer wrote, "In a world of bad people and dangerous weapons, there is no room for complacency, but Mueller has found it anyway." The reviewer in the Wall Street Journal ("Why Worry? If Iran and North Korea want the bomb so badly, we should 'let them have it.'" October 29, 2009) noted Mueller was alarmingly dismissive about the blast effects of bombs and the biological effects of nuclear fallout: "Mr. Mueller also offers a thinly sourced disquisition on the health effects of radioactive fallout. Exposure to low doses of radiation, he says, might actually be 'beneficial by activating natural coping mechanisms in the body.'"

[4] John H. Else (Director), The Day After Trinity (Pyramid Films, 1981), 00:49:45~00:50:05, https://youtu.be/Vm5fCxXnK7Y.

8. *Breaking* Bad and the New Mexican Nuclear Uncanny

The junk merchant does not sell his product to the consumer. He sells the consumer to his product. He does not improve and simplify his merchandise. He degrades and simplifies the client.
-William S. Burroughs, *Naked Lunch* [1]

Western civilization's social, man-made, and natural environments are dysfunctional, decaying and polluted. This dystopia is familiar to everyone because we see it in the mass media and we see it reflected in popular entertainment. It is common for film and television writers to choose the decline of empire as a central theme of their work. Disaster movies are all too familiar, and high quality cable television dramas such as *The Sopranos*, *Mad Men*, and *Breaking Bad* come to mind as examples of long-form fiction that cover the topic better than any two-hour movie could. Yet, in spite of the apparent interest in the grand theme of the rise and fall of empire, these works reveal the extent to which both the producers of mass entertainment and its audience are unconscious of the fact that their stories are tales of the nuclear age.

Noam Chomsky wrote, "If some extraterrestrial species were compiling a history of Homo sapiens, they might well break their calendar into two eras: BNW (before nuclear weapons) and NWE (the nuclear weapons era)." [2] As significant as this break in history was, it is seldom portrayed in popular entertainment. Nuclear weapons appear occasionally in disaster movies as terrorist threats or other such plot devices, but the real stories of the nuclear age, of the victims and veterans of nuclear testing, for example, remain hidden. Films such as *Coming Home and Born on the Fourth of July* told the fictional stories of Vietnam veterans, but there is yet to be a Hollywood film about a veteran who came back from the Nevada Test Site, or a story told about the hibakusha of the Bikini Islands.

The generation that lived through the rupture between these eras was much more aware of how the atom bomb had transformed society. In the

book *American Scream: Allen Ginsberg's Howl and the Making of the Beat Generation, Jonah Raskin wrote:*

> "Nineteen forty-eight was the crucial postwar year," Ginsberg explained. "It was the turning point. Of course the atom bomb had already gone off in 1945, and Kerouac and Burroughs and I had talked about it, but the psychological fallout from the bomb—the consciousness—didn't really hit until 1948. There was the splitting of the atom and the splitting of the old structures of society and also a sense of the inner world splitting up and coming apart." Like many other writers around the world, Ginsberg turned the atom bomb into an all-inclusive metaphor. Everywhere he looked he saw apocalypse and atomization. [3]

In Jack Kerouac's *On the Road*, there is no mention of the atom bomb until the final pages of the story, set in Mexico, yet it delivers the explanatory punch of the tale. The refusal of the characters to take part in the post-war economic boom, and all the preceding delinquency and mad wanderings of these "best minds of a generation" now seem to be explained by this painful consciousness of how the world had changed:

> Strange crossroad towns on top of the world rolled by, with shawled Indians watching us from under hatbrims and rebozos. All had their hands outstretched. They had come down from the backmountains and higher places to hold forth their hands for something they thought civilization could offer and they never dreamed the sadness and poor broken delusion of it. They didn't know that a bomb had come that could crack all our bridges and banks and reduce them to jumbles like the avalanche heap, and we would be as poor as them someday and stretching out our hands in the samesame way." [4]

What I seek to illustrate here is the decline of nuclear consciousness in popular art, using the masterpiece TV drama *Breaking Bad* [5] as a prime example. The nuclear age is implicit in nearly every frame of the series, even though the story almost never explicitly touches upon any aspect of America's nuclear past. Centered on a high school chemistry teacher who embarks on a criminal career as a manufacturer of crystal methamphetamine, *Breaking Bad* is set in Albuquerque, New Mexico, a state which was ground zero for much of America's nuclear program. In *The Inconceivable Atomic Legacy of New Mexico*, Sam Gilbert wrote:

> A former Los Alamos scientist, who requested anonymity, told me, "The US nuclear complex is either unacknowledged or considered antiquated Cold War stuff. But look at the world today—Iran and North Korea, the global investment in nuclear energy, and the meltdown in Japan. It's coming full circle, with New Mexico at the center." … in his book *The Nuclear Borderlands*, author Joseph Masco describes New Mexico as "the only state in the US supporting the entire cradle-to-grave nuclear economy." This includes uranium mining, nuclear weapons design and testing, the largest single arsenal of nuclear weapons, and the country's only permanent depository for US military industrial nuclear waste. [6][7]

New Mexico is home to Los Alamos National Laboratories, the primary site of the Manhattan Project and still a leading nuclear technology center and waste storage facility. Sandia Labs in Albuquerque "strives to enhance the nation's security and prosperity through sustainable, transformative approaches to the world's most difficult nuclear energy challenges." [8] In the south of the state, there is Alamogordo, site of Trinity, the world's first nuclear test in 1945. In the southeast corner of the state is Carlsbad, site of the Waste Isolation Pilot Project (WIPP), the nation's only nuclear waste repository. It functioned for fifteen years before recent failures and radiation leaks raised serious questions about the viability of all such plans to bury nuclear waste. [9] Finally, in the northwest corner of the state there is Church Rock, the site of the July 16, 1979 uranium mine tailings breach (occurring *to the hour* on the 34th anniversary of the Trinity test) that went into the forgotten history books as America's worst case of environmental radiological contamination—worse even than the famous Three Mile Island disaster, which occurred just three months earlier. [10]

All of these nuclear sites have made New Mexico a nuclear state, a state that has grown and benefited over the last seventy years thanks to infusions of federal spending on defense, nuclear weapons, and nuclear energy. In all this time, New Mexico has received more federal funds than it contributes back to the federal government.

Thus the broken society depicted in *Breaking Bad* is the product of the nuclear technocratic economy that dominated the state in the late 20th century. New Mexico is an extreme case, but if other states and other nations look similar it is because they too have been affected in the same way by defense and security spending.

Breaking Bad was, however, not consciously created as a story about

the nuclear legacy. The show's creator, Vince Gilligan, had originally chosen southern California as its backdrop, but he was asked to film in New Mexico strictly for the financial incentives offered by the state. For a while he considered how to set up his shots to look like California, but then he decided it would be simpler just to set the whole story in Albuquerque.

The central character of *Breaking Bad* is Walter White, a teacher and a chemist. The fact that he has never done any work related to American defense or nuclear programs is another indication that the writers of the series had no intention to write a "nuclear" story. It's implausible that someone with his skills wouldn't be working at one of the national laboratories if he had become dissatisfied with teaching high school.

By the second season of the series the producers seemed to become aware of the nuclear backdrop to their story. They staged one scene (season 2, episode 7) in The National Museum of Nuclear Science & History in Albuquerque (depicted by its name at the time, The National Atomic Museum). The scene is crucial, as it is a turning point at which Walt decides to go from being a minor producer of meth to running a large-scale operation, instructing his distributors to build the network exponentially and conquer new territory. The metaphor of the nuclear chain reaction is well placed in the story. It essentially represents Walt's decision to "go nuclear" in the scale of his drug empire. He explicitly tells Jesse, his young partner responsible for distribution, to go for exponential growth, with the nuclear chain reaction serving as one of the many science metaphors Walt uses when instructing the young men under his care. In one scene Jesse is shown wearing a T-shirt with a pumpkin face doubling as a radiation symbol.

Nonetheless, the museum setting stays implicit in the background, as none of the characters refer to it in the scene, and nuclear history is never referred to again. The story creators and their characters think about New Mexico as a "nuclear space" as much as a fish thinks about water, but the side-effects of the nuclear science economy permeate the environment of police stations, junk yards, strip malls, drug dens, suburban swimming pools, Indian nations and, most of all, the surrounding desert that serves as a constant reminder of what nuclear technology threatens to deliver on thirty minutes notice. Furthermore, the plague of crystal meth addiction at the center of the story underscores a fact of life in the techno-scientific age. Nuclear weapons are essential, so it is humans who must adapt or be anesthetized to what the construction of a nuclear-weapon state demands.

Whether the creators of *Breaking Bad* were aware of it or not, the setting seems to portray what Joseph Masco meant when he wrote of New Mexico's "nuclear uncanny"—an anxious "new cognitive orientation

toward everyday life" and "reconfigured concepts of time, nature, race, and citizenship." New Mexico is a "home to both the hyperwealthy and the poorest of the poor, one that is simultaneously sacred space, US experimental laboratory, tourist fantasy land and national sacrifice zone." [11] Vince Gilligan was probably quick to realize that it was a stroke of luck to have his story's location moved to New Mexico, for the setting itself seems to be a central character or even a creative force in the narrative. In retrospect, it's hard to imagine it would have struck such a chord with its audience if it had been set elsewhere.

It's also worth noting, before discussing *Breaking Bad* further, that the creators of the show seemed interested in the radioactive background of their story after it had concluded. In the "prequel" series *Better Call Saul*, which chronicles the early years of Walter White's "criminal" criminal lawyer, Saul (then known by his actual name of Jimmy McGill) experiences a "meltdown" while calling bingo numbers at a seniors' residence. Here's how he expresses his New Mexico state of mind:

> None of us is ever leaving this godforsaken wasteland… I mean what is it with this place? It's like living inside an Easy-Bake oven. Look out that window. It's like a soulless, radioactive Georgia O'Keeffe hellscape out there, crawling with coral snakes and scorpions. Did you ever see the movie *The Hills Have Eyes?* It's a documentary! God forbid your car breaks down and you have to walk ten steps. You've got a melanoma the size of a pineapple where your head used to be. So you ask why, if that's how I feel, why do I live here... why? [12]

The Hills Have Eyes (1977, with a re-make in 2006) is a horror film set in New Mexico, in which a family is lost in the desert and tormented by mutant humans born from a nuclear testing site.

As *Breaking Bad* begins, our non-smoking hero is diagnosed with lung cancer, while the aunt of his young partner in crime has been stricken the same way. Cancer is the affliction that has made them "break bad." The nuclear economy has not given rise to any form of equitable social system with health care and death benefits for the widow of a high school teacher. The money flowed for nuclear weapons, but not for those now suffering from the plutonium blowing in the wind. On the Western frontier it is still every man for himself, so in the face of death Walt concludes life as an upstanding citizen is for suckers.

Besides these cases of cancer, Walter Jr. has cerebral palsy, adding to the pall cast over the technological landscape. Many people accept such

afflictions as naturally occurring, but at the same time we have the uneasy feeling that something is amiss. Formerly rare conditions seem to touch every family on every street. Walter's radiation treatment burn is recognized by his scientifically illiterate partner because it is such a common sight.

While the story portrays these physical diseases, *Breaking Bad* is mainly about the social disease of addiction and the war on drugs, and thus it follows in the literary tradition of William S. Burroughs' *Naked Lunch* in portraying drug addiction as a metaphor for the organizing principle of modern life: addiction to power and control, to consumption, to machines, to oil and uranium, and addiction to making others addicted. As Cold War spending declined in the 1990s, New Mexico was primed to turn from one kind of fix to another.

Into the breach comes Walter White like a latter day Robert Oppenheimer, a man of science reluctantly tempted into an evil scientific endeavor that will happen with or without his participation. Oppenheimer made an atom bomb, whereas Walter White makes a neurochemical weapon of mass destruction. Incidentally, we can note that the criminal undertaking involves the same toxic secrecy and insecurity that nuclear-weapon states require. Walter comes to his life of crime first telling himself that his motives are pure. He will take just enough to save his family. If he doesn't do it, someone with lower motives will do it anyway, with an inferior product.

Oppenheimer, the lead scientist of the Manhattan Project at Los Alamos, described his participation in the same way. He said famously about the first nuclear detonation:

> I remembered the line from the Hindu scripture, the Bhagavad-Gita; Vishnu is trying to persuade the Prince [Arjuna] that he should do his duty and, to impress him, takes on his multi-armed form and says, "Now I am become Death, the destroyer of worlds." I suppose we all thought that, one way or another. [13]

The historian Alex Wellerstein explained in his interpretation of this quote that Oppenheimer was not claiming god-like powers, as many people have understood his words. [14] The story from Hindu scripture shows that the prince did not want to serve in the war, but here the god stood before him and proved his divine power by taking multi-armed form, and convinced the prince that it was in his interest to submit to the fate that was demanded of him, as Vishnu would carry on with his plans with or without the prince's participation. The destruction was ordained to happen—

someone more evil might have made the bomb first, or conventional bombing would have ruined Hiroshima and Nagasaki anyway. To put it in the simpler language of the contemporary Dionysian gods Jagger and Richards, Vishnu was saying, "I'm simply dying for some thrills and spills. If you can't rock me, somebody will." [15]

It may seem odd that these rational men of science justified their participation in the nuclear weapons program by comparing their necessary obedience to the US government with the superstitions of an ancient belief system, but that system was just a portrayal of a dilemma inherent in the exercise of political power. They had to participate because the train was leaving the station with or without them. Some of the scientists might have felt morally off the hook at the time, but it is well known that Oppenheimer was more remorseful and tormented as time passed. He told President Truman, speaking for himself but implicating Truman as well, that he had "blood on his hands." He favored putting the atomic bomb under international control and was against the development of the hydrogen bomb. Unlike Einstein and scientists who left the nuclear weapons program, Oppenheimer stayed on in the hope of changing the system from within. However, his dissenting opinions became less welcome as American anti-communism became extreme, and he eventually lost his security clearance.

As the story of *Breaking Bad* progresses, Walter's hands get bloodier as his motives become darker. When he obtains more than enough to provide for his family, he still wades in deeper, like Macbeth trapped by the "insane root that takes the reason prisoner" (*Macbeth* I.III.83). He is in a place he never intended to be at the outset, in the same way every junkie never set out with a plan to become an addict. *Breaking Bad* has been called a great modern tragedy, and the parallels to *Macbeth* run deep. Some of Macbeth's lines would fit right into the mouth of Walter White: "It will have blood; they say blood will have blood" (III.IV.122), or "I am in blood stepp'd in so far that, should I wade no more, returning were as tedious as go o'er" (III.IV.136-138).

As Walter White succumbs to his addiction to power, he takes on the pseudonym Heisenberg, which is perhaps the story's only explicit reference to nuclear physics. The name serves as a metaphor for the moral enigma that is Walter White. Werner Heisenberg was famous for formulating the uncertainty principle, which states that the more precisely the position of some particle is determined, the less precisely its momentum can be known. Heisenberg's life itself contained many uncertainties, as it was known that he conducted research into nuclear fission in Germany during the early 1940s, but the extent of his enthusiasm for building an atom bomb for

Hitler remained a mystery.

Walter White is an enigma in the same manner. Can we observe at which point he loses our sympathy and becomes loathsome? While we observe, we can measure one aspect of his nature, but not others. Is his addiction to power any different than the addiction of a meth addict, or any different than that which we see in our institutions and corporations and in global politics? To the police he is like a subatomic particle: the meth kingpin Heisenberg's existence may be known but his meth-making cannot been observed. When his actions are observed, his mind and his nature are unfathomable. Robert Oppenheimer alluded to this when he said, "There are no secrets about the world of nature. There are secrets about the thoughts and intentions of men." [16]

Walter White uses science in one other way to hint at duality and ambiguity. In his mundane role as a chemistry teacher, he tells his students about chirality, the property of asymmetry derived from the Greek word for "hand," a familiar chiral object. An object is chiral if it is, like a hand, not identical to its mirror image. As a metaphor for moral agency, Walter is hinting that people too are chiral opposites with Jekyll-and-Hyde like properties, just as a molecule's potential is changed when its orientation is reversed. Walter may appear to others as a benign teacher and family man, but when he is flipped he is capable of things which no one expects of him.

In the finale, Walter White admits to his wife that he didn't really do it for the family. He did it because he was "good at it." He knows he will die soon, by cancer or violence. He knows he has lost his family, that his son will despise him forever, but he has not come to his wife one last time in order to apologize. He wanted to admit to all past excuses and speak the truth, but what he says falls short of showing contrition. Later, when he is dying of a gunshot, he staggers to his lab equipment and dies caressing his precious creation. He bears a great resemblance to other men of science who gave up their lives and scruples for the chance to express their genius. No regrets, and sorry, not sorry. As Robert Oppenheimer said, "When you see something that is technically sweet, you go ahead and do it, and argue about what to do about it only after you've had your technical success." [17] For Oppenheimer, that later argument was ruinous, both personally for himself and for the world he tried to warn about the necessity of eliminating nuclear arms. [18] *Breaking Bad* is a work of art that has much to contribute to discussions over what should be done in the aftermath of the many "technical successes" of the 20th century.

The promotional trailer for the final season of *Breaking Bad* featured Bryan Cranston reciting the famous poem *Ozymandias* that provided the title of one of the episodes.

Ozymandias
by Percy Bysshe Shelley (1818)

I met a traveller from an antique land
Who said: “Two vast and trunkless legs of stone
Stand in the desert. Near them, on the sand,
Half sunk, a shattered visage lies, whose frown,
And wrinkled lip, and sneer of cold command,
Tell that its sculptor well those passions read
Which yet survive, stamped on these lifeless things,
The hand that mocked them and the heart that fed.
And on the pedestal these words appear --
‘My name is Ozymandias, king of kings:
Look on my works, ye Mighty, and despair!’
Nothing beside remains. Round the decay
Of that colossal wreck, boundless and bare
The lone and level sands stretch far away.”

Notes

[1] William S. Burroughs, *Naked Lunch*, (New York: Grove Press, 1959), in footnotes. See also *Word Virus: The William S. Burroughs Reader* (Grove Press, 2000), which notes the irony in Burroughs having attended the Los Alamos Ranch School before it became the birthplace of the atom bomb. The school was purchased by the United States Army's Manhattan Engineering District in 1942.

[2] Noam Chomsky, "How Many Minutes to Midnight?" *Chomsky.info*, the official website of Noam Chomsky, August 5, 2014, https://chomsky.info/20140805/.

[3] Johnah Raskin, *American Scream: Allen Ginsberg's Howl and the Making of the Beat Generation* (Berkeley: University of California Press, 2004), preface. Ginsberg's concern with the nuclear threat continued throughout his life as he participated in protests in the 1970s at the Rocky Flats plutonium pit factory, and wrote a poem titled *Plutonian Ode*.

[4] Jack Kerouac, *On the Road: The Original Scroll* (New York: Viking Books, 2007). The original draft of *On The Road* was typed in 1951, and later published in a much-revised format in 1957.

[5] Vince Gilligan, creator, *Breaking Bad*, Sony Pictures Television (2008-2013).

[6] Sam Gilbert, "The Inconceivable Atomic Legacy of New Mexico," *Vice*, February 24, 2014. http://www.vice.com/read/the-atomic-legacy-of-new-mexico.

[7] Joseph Masco, *The Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico* (Princeton University Press, 2006). The publisher's synopsis on the back cover states: "The atomic bomb… is not just the engine of American techno-scientific modernity; it has produced a new cognitive orientation toward everyday life, provoking cross-cultural experiences of what Masco calls a 'nuclear uncanny,' revealing how the bomb has reconfigured concepts of time, nature, race, and citizenship."

[8] Sandia National Laboratories, Technology Deployment Centers, http://www.sandia.gov/research/facilities/technology_deployment_centers/.

[9] Sasha Pyle and Joni Arends, "Reader View: WIPP accident reveals serious problems," *Santa Fe New Mexican*, June 14, 2014. http://www.santafenewmexican.com/opinion/my_view/reader-view-wipp-accident-reveals-serious-problems/article_e9ff9758-a4fc-5c8e-b949-7326bc776522.html.

[10] Linda M. Richards, "On Poisoned Ground," *Chemical Heritage* (now known as *Distillations*), Spring 2013. https://www.chemheritage.org/distillations/magazine/on-poisoned-ground.

[11] Joseph Masco, 35.

[12] *Better Call Saul*, Sony Pictures Television, Season 1, Episode 10, "Marco," written by Peter Gould. Original air date April 6, 2015, AMC Television.

[13] Robert Oppenheimer as interviewed for "The Decision to Drop the Bomb" an episode in the semi-regular NBC television program *NBC White Paper*, 1965.

[14] Alex Wellerstein, "Oppenheimer and the Gita," *Restricted Data: Nuclear Secrecy Blog*, May 23, 2014. http://blog.nuclearsecrecy.com/2014/05/23/oppenheimer-gita/.

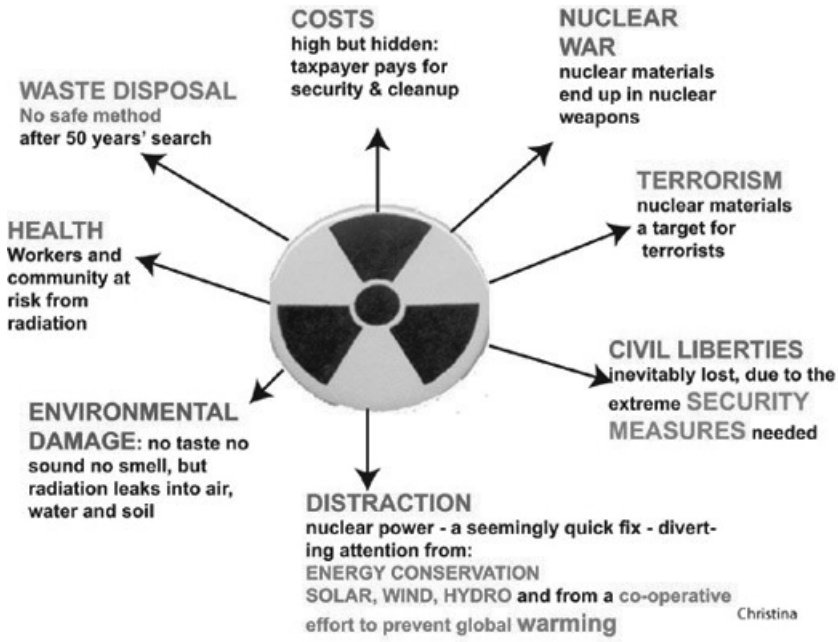
[15] Mick Jagger and Keith Richards, "If You Can't Rock Me," *It's Only Rock and Roll* Universal International Music, 1974.

[16] Robert Oppenheimer as interviewed by Edward R. Murrow for "A Conversation with J. Robert Oppenheimer," an episode in the semi-regular CBS television program *See it Now*, January 4, 1955.

[17] Robert Oppenheimer testifying in his defense at the April 13, 1954 security hearings, *United States Atomic Commission, Volume II, 266*, http://www.osti.gov/includes/opennet/includes/Oppenheimer%20hearings/Vol%20II%20Oppenheimer.pdf.

[18] Kai Bird and Martin J. Sherwin, *American Prometheus: The Triumph and Tragedy of J. Robert Oppenheimer* (New York: Vintage, 2006). Most of the biographical information on Oppenheimer comes from the preface of this book.

PART TWO:
NUCLEAR ENERGY



(Sourse unknown. Shared widely on the Internet.)

9. Were It Not That I Have Bad Dreams

Why, then 'tis none to you. For there is nothing either good or bad but thinking makes it so… I could be bounded in a nutshell and count myself a king of infinite space, were it not that I have bad dreams.
- *Hamlet,* Act 2, Scene 2

The debate over nuclear energy seems to exhaust the patience and interest of the public. It's one of those debates many people just steer clear of in order to preserve their mental health. It has joined company with the death penalty, abortion, and marriage equality—that category of passionate controversies in which neither side cedes one inch of ground. If you haven't reached this point yet, go see the pro-nuclear propaganda film *Pandora's Promise* (USA, 2013), read some reviews of it, then read the hundreds of online comments that pour in after the reviews. By that time, another line from Hamlet will come to mind: *I'll no more on't. It hath made me mad.*

In these arguments no one changes his or her mind, because the two sides talk past one another without realizing they are each motivated by a difference in their unspoken assumptions and values. They seem so self-evident that the need to state them is forgotten. As Hamlet remarked in the quote at the top, we could all be moral relativists. The universe doesn't care how much plutonium is on our planet, but we all have experiences and innate tendencies from which our values form. It is the breach of them that troubles us, what gives us what Hamlet called "bad dreams."

I once debated nuclear energy with a friend who compared it to other forms of risk that we decide to live with. We were eating hamburgers in a restaurant and he asked why we don't demand that such eateries be shut down because of the harm cholesterol inflicts on our arteries. I thought it was off the point, but we got distracted and the conversation moved on.

Later, I wondered how he could have made this equivalence between beef and plutonium, and I realized that for pro-nuclear people it's a foregone conclusion that uranium and plutonium, and the whole witch's brew of fission by-products, should be used regardless of the risk they pose to the ecosystem. It's a given that we were right to exploit them and right to

carry on producing them. Producing more energy is a good thing. Building nuclear power plants provides jobs and profits, and energy keeps the economy going. In this belief system, it is madness to suggest these goals are not the ones to be pursued.

In my world view, cholesterol is a natural substance that has been in human blood since the time before we were even human. Mammalian blood evolved with it, and it is like numerous other biological chemicals that have benefits to our reproductive success in evolutionary terms, but downsides in terms of individual longevity. On the other hand, no living thing evolved in the presence of plutonium. It has no nutritional value. The radioactivity of the earth had to decrease over a couple of billion years before life became possible. The risks of consuming nutrients like cholesterol can't be compared to the risk of deliberately exposing living things to the radionuclides produced by industrial activity.

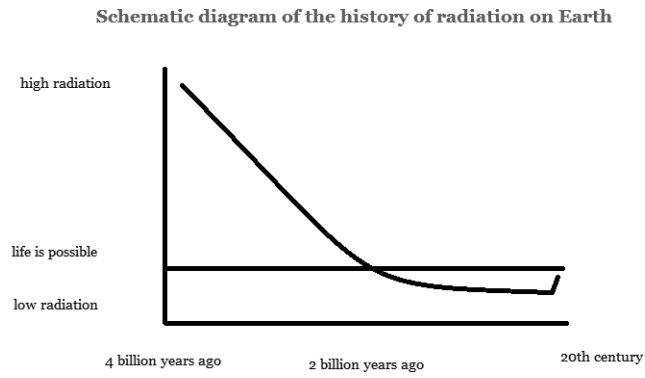
Nonetheless, for my friend there was an equivalence. The ongoing presence of nuclear pollution in the world is taken as a given. The genie ain't going back in the bottle. Debating the issue at this fundamental level is like rehashing the European conquest of the Americas. For some people this history actually still provides a worthwhile lesson about how global capitalism has to change in order to avoid an ecological catastrophe. For others it's a done deal. It was inevitable, it happened, it's going to keep happening. Get over it. We will use nuclear fuel to finish what the conquistadors started. Endless growth in consumption is assumed, and we are going to provide the energy for it. We will keep producing plutonium to fuel the rockets that will take us to places Columbus never dreamed of.

It took me a while to realize that this was the fundamental question about nuclear energy. The pro-nuclear side believes that the discovery of the energy potential of uranium was a gift to mankind. We would have been fools not to exploit it. In contrast, the anti-nuclear side believes that this new form of energy was a temptation to an evil that we should have resisted.

There is no small irony in the fact that nuclear energy supporters' views have a lot of overlap with conservative, pro-business political views, and conservatives claim that these views are underpinned by traditional religious beliefs. The anti-nuclear side is more aligned with secular progressive politics. Nonetheless, it is the pro-nuclear side that fails to see the use of nuclear energy as an affront to God. The anti-nuclear side is the one that recognizes nuclear energy as a temptation to evil, to get something for nothing, to toss aside humility and place ourselves above God in the pursuit of comfort and power.

Every religion and every culture has their parables and myths that teach the moral lessons of humility and living within a covenant with the social and natural environment. Mankind's experience with nuclear energy is often compared to the story of Prometheus stealing the fire of the gods for mankind's use. It can also be seen in Sisyphus. The promise of unlimited energy seems to say that we could now get that rock up the slope with the push of a button. The most applicable moral may be in the story of Odysseus tying himself to the mast while he sails past the Island of Sirens. Everybody knows that something too good to be true must be a false promise. All the energy for my lifestyle for just a few grams of waste product? There must be a catch.

One need not be a scholar of religion or antiquity to grasp this truth. Street level experience teaches us to be wary of all the common cons that come our way—propositions from over-friendly, attractive strangers, free samples from a drug dealer on a street corner, emails from deposed ministers who need help getting funds sent overseas. Plutonium, a primordial element born in the formation of stars, announced itself like a spam email from across the universe, and we clicked on the link attached within. We've been sending money for a long time now, waiting for the promised payoff.



We can't debate nuclear energy without knowing how we got it and what it does to living cells, yet it seems like many do. It might seem more reasonable to exploit it if you don't know that life evolved over two billion years up to the 20th century with almost no contact with radioactive chemicals. (But wait. Let's pause here to let the pro-nuclear people finish their lecture about bananas and natural background radiation…)

Yes, there has always been natural background radiation and life has evolved with it and learned how to repair the damage it causes. Yet the point remains that, until the 20th century, uranium was safely buried under the ground, diluted in ores and, for the most part, out of contact with the ecosystem. More significantly, plutonium, because it was a primordial element that had almost completely decayed away, existed in quantities so small that it never had any impact on living things.

In the 20th century, some nations, tempted to obtain unlimited energy and military power, began to dramatically increase the amount of uranium in human hands, which put it at risk of poisoning the ecosystem. At the same time, plutonium was manufactured out of uranium. Uranium ore was brought to the surface of the earth, concentrated and purified. It was enriched so that its most radioactive isotopes could be concentrated to critical levels that don't exist in nature—the levels that allow for the exploitation of nuclear energy to produce heat or explosions. Plutonium was also created by neutron bombardment of uranium in a cyclotron or in a nuclear reactor.

The basis of the nuclear energy debate is in how the decision to exploit uranium is perceived. It is either a gift to mankind or the end of mankind. If you really think it was a gift, the thing that is going to take humanity on a science-fiction trip to an inter-galactic civilization, then the anti-nuclear argument will seem like insanity to you.

Once this fundamental position is acknowledged, it's pointless to argue about how many lives were shortened by the Chernobyl catastrophe, or how many will be by Fukushima. If you are pro-nuclear, it's all about getting a minority of humanity to an advanced technological future, so it is assumed and permissible that there will be sacrifices along the way (an assumption in this belief system that is seldom admitted). The human sacrifices are all worth it, just as they were to the Aztecs who sacrificed their enemies, as they were to Cortez when he slaughtered the Aztecs in their turn, as they were to Noble Peace Prize winner Henry Kissinger when ordered the bombing of Southeast Asia to save it from communism. It can all be rationalized by saying there will always be, actually or hypothetically, more people dying from an evil ideology, particulate smog, or poverty because they don't have access to the electricity that nuclear energy could provide. If millions of people developed cancer from global weapons testing fallout, it doesn't matter because the Berkeley Radiation Laboratory, in addition to giving the world plutonium, gave the world medical isotopes for treating cancer. In this futile vision of progress, like boats beaten back by the tide, the next technology always promises to fix the damage of the

last technology.

For the anti-nuclear side, it is equally pointless to get into an argument about numbers. The numbers are based on hypothetical conjectures about the past, present, and future effects of phenomena that are influenced by multiple variables. The "greater good" argument is irrelevant because it is always conjecture and an excuse, while the emphasis in the anti-nuclear stance is on a principle. Once you've taken the position that it is wrong to exploit uranium and plutonium, wrong to place ourselves above God or break the covenant with the natural world, wrong to accept that human sacrifices are necessary, you don't need to engage in an un-resolvable argument that seeks to definitively quantify the harm. Let's just tie ourselves to the mast as we sail past this one. In a time of global ecological crisis, idealism is the new realism. The true prize is beyond the horizon.

10. Book Review: *Chernobyl: Crime without Punishment* by Alla A. Yaroshinskaya

The Chernobyl catastrophe was largely forgotten and dismissed by the world as soon as the smoldering mess was contained in the famous sarcophagus, but those who have paid attention to the issue since then have been aware of the strangely divergent views of the human toll of the disaster. One view claims that a million people have died prematurely, and millions more have had their health ruined, while the other side says there was only a small increase in cancer deaths and "generally positive prospects for the future health of most individuals should prevail." [1]

If anyone still doubts the more pessimistic view, they need only read the recently published *Chernobyl: Crime Without Punishment* to lay the question to rest. [2] This is a translation of a book written by Ukrainian journalist, politician and winner of the 1992 Right Livelihood Award, Alla A. Yaroshinskaya. In this powerful condemnation of injustices suffered by Chernobyl victims for the past quarter century, the author provides volumes of evidence about their suffering—and it is the kind of evidence that should really be emphasized over other types that serve the interests of the nuclear industry. The experiences of the victims and witnesses reveal the health effects of what may be the world's worst radiological catastrophe. (There are other contenders for this prize).

Scientists can debate among themselves whether small amounts of radiation stimulate genetic repair, or make positive changes to chromosome telomeres, but anyone who chooses to "remember his humanity, and forget the rest" (to quote the famous line on this topic pronounced by Albert Einstein and Bertrand Russell) will be convinced by the corroborating evidence given by millions of victims. Doubting these accounts is a little like denying what occurred in Germany and Eastern Europe in the 1940s. The evidence may be dismissed as "anecdotal" by researchers in the hard sciences, but not in the social sciences where witness testimony is a legitimate and indispensable type of evidence, and a radiological disaster is something that rightly deserves to be studied as a sociological phenomenon.

Ms. Yaroshinskaya's writing demonstrates that it is time to get over the senseless false controversy about the effects of nuclear accidents and look squarely in the eyes of people affected.

This is an important book that should be translated into Japanese so that Japan might be able to reverse the harm that has been done by successive government failures to deal with the Fukushima Daiichi meltdowns. This book also clears up some of the misunderstandings about the Soviet handling of the situation.

Since the Fukushima Daiichi catastrophe, many critics of the Japanese government have pointed to the evacuation of Pripyat in 1986 as a model of effective government response. They ask why a communist government did so much better than a supposedly advanced and wealthy democracy. This view would amuse Ms. Yaroshinskaya. The truth is that the Soviet disaster was a much larger contamination—most of it fell on land; whereas in Fukushima, 70-80% of it fell on the ocean, and it differed in other ways that make it worse in some respects. The evacuation of Pripyat came too late, and in Kiev, only 100 kilometers away, the regular May Day parade was held a few days after the explosion in a cloud of heavy radiation, as if in an x-ray machine, as the author puts it. While high party officials waved to the crowds, their loved ones had been spirited away to safer locations. One scientist quoted in the book estimated that 15,000 dying victims were turned away from Kiev hospitals in the days after the explosion, never to be officially recognized as radiation victims.

After the establishment of the permanent exclusion zone, it became obvious that large parts of Ukraine, Belarus and southern Russia were of questionable fitness for habitation, but the people on these lands were ignored and essentially left to their own devices. There would be no further evacuations. The city of Gomel, Belarus (population 480,000, a sort of "sister city" of Fukushima City) and the surrounding region are still dotted with zones of the highest contamination levels, and some scientists believe the gene pool of the population has been permanently damaged.

Ms. Yaroshinskaya presents the victims' cases in their own voices, and what emerges are stories that resemble the experiences of rape victims. First there is an assault on the body (by radiation) then there are the insults and humiliation experienced in the pursuit of justice. A typical letter is this one:

> I am not yet 32 years old, but I find myself in a hospital bed several times a year. And all of my four children (under 12) are also ill most of the time (they feel weak and listless, they have joint pains in arms and legs, their hemoglobin is below normal, they have enlarged thyroid

> and lymph nodes, headaches, stomach pains, constant colds). And it is the same in every family. We want to live. We want our kids to live and grow up healthy, and have a future. But through heartlessness, callousness and cruelty of those on whom our lives and the lives of our children depend, we are condemned to the worst possible fate, and we are only too well aware of that... We have had to eat, drink and breathe radiation for years, waiting for our last day.
> - Valentina Nikolaevna Okhremchuk, mother of four little boys, speaking for all the mothers of Olevshchina

One might say that one letter like this would prove nothing, but the fact is that there were hundreds of them signed by thousands of petitioners sharing the same experiences, so the narrative becomes impossible to deny.

As a victim herself who was living in an area of heavy fallout, the author pursued the story as a journalist immediately after the disaster. She made unauthorized and clandestine trips to the villages where people were living on contaminated soil, and there she collected their stories. At a time when photocopiers were scarce, and accessible only with official approval, she spread the word via hand-typed copies through a network of sympathetic supporters—a way of evading censorship referred to at the time as samizdat distribution. When the glasnost period advanced, she was elected to the The Congress of People's Deputies, the first democratically elected body that was created during Gorbachev's glasnost and perestroika (openness, reform) period. During her work as a journalist and a politician, she collected the letters that her readers and constituents sent to her. They begged for justice and relief from living in a radioactive environment.

These letters are heart-wrenching testimony to the contemptuous neglect that victims suffered at the hands of their governments, as well as the scientists and doctors who defended the official view that claims of declining health were caused by "radiophobia" and the social factors that came with the decline of the Soviet Union.

In the aftermath of the disaster, residents in contaminated zones were quickly relocated, and there were hasty decisions made about where to rebuild. Money flowed to construction projects, new villages sprang up, and only then they discovered that this land too was almost as contaminated as the towns that had been evacuated. This was in the days before one could buy a cheap, hand-held Geiger counter. Even qualified scientists needed government permission to take measurements, so these villagers were at the mercy of a government that wished they didn't exist.

The one saving grace of the Fukushima disaster is that it happened in

the age of the Internet and inexpensive radiation detectors. Some Japanese legislators made vain calls to make it illegal for citizens to measure radiation, but nothing came of it.

One subgroup of relocated citizens was the staff of the Chernobyl power plant itself. Incredibly, two other reactors on the site remained in operation until the year 2000, and staff commuted to the plant every day to work in the radioactive environment. The former company town of Pripyat was evacuated and a new town was built in Slavutich, but it too was on contaminated land and not fit for normal life. Outdoor recreation was not possible, and workers felt sick and demoralized.

By the late 1980s, the Soviet Union was unraveling, money for relocation had been exhausted, and no one in official positions wanted to admit to past mistakes and fix them. In addition, promises of "clean" food supplies were broken. During periods of shortages and inflation, the allowances given for buying this clean food became an insult to the recipients. There was no clean food to buy, and if there had been, it would have been unaffordable. The food allowance became known as a pittance of "coffin money."

Another category of victim was made up of the 800,000 liquidators who battled the reactor fire and built the structure that sealed off the danger from the environment. Chernobyl is regarded now as a war, and the liquidators are rightly referred to as veterans of an epic struggle against a new kind of enemy. They are undoubtedly responsible for saving all of the Eurasian landmass from becoming uninhabitable. These young men and women answered the call to save their country without hesitation (but they were conscripted and didn't have a choice anyway), and one would think that the just reward would have been guaranteed hero status, disability pension, and health care with special provisions for the effects of radiation that they would suffer. Such benefits were promised, but in reality the Chernobyl veterans were for the most part betrayed. A population of this size, exposed to high levels of radiation, could have provided valuable knowledge about the effects of nuclear accidents, but the veterans were ignored by official studies inside and outside of the former Soviet Union.

The common understanding of radiation effects predicted that the Chernobyl liquidators would get cancer at some time decades later, but instead the most common observation was generalized premature aging. Men who went into battle in the prime of their youth were dying ten years later from heart attacks and strokes. They suffered from immune disorders and digestive disorders, and, in fact, a general decline in every aspect of biological function. Since these disorders could be classified as health

conditions normally found in the general population, the official stance was that they were not related to radiation exposure. Complaints were dismissed as "radiophobia," and declines in health were linked to the social upheaval and economic decline of the times. One victim quoted in the book snarled sarcastically that yes, he was getting "radiophobia." He was afraid to turn on the radio and listen to the nonsense spouted from official media sources.

The truth is something that is known by people who have a theory of human nature that says all people want dignity, health and the chance to contribute to society. These victims and veterans, like all people, did not want to live life as moochers. They wanted to work with the same vigor they put into working the land, or (in the case of the liquidators) into resolving the crisis at the reactor. Rather than having a fear of radiation, they waved it off with bravado until it was too late to save their health.

As protest movements gathered strength in the 1990s, governments were forced to listen to complaints of victims and veterans, but still they gained little. At one time, a cynical move was made to monetize the meager benefits that these groups received. Instead of guaranteeing them defined benefits such as free transportation, free medical exams and so on, the value of these benefits would be pegged to a monetary value and paid out on a regular schedule. In a time of high inflation and rapid economic change, the ruse was obvious. Without a guaranteed index that defined benefits, the monetizaton scheme was just a way to get beneficiaries off the government ledgers.

Ms. Yaroshinskaya concludes that the victims in the villages and the Chernobyl veterans were totally marginalized and abandoned by successive governments. She condemns the villains, and has a willingness to name names and describe them with the vitriol she thinks they deserve. She points out the essential fact that what little the victims managed to gain was won only when the movement grew strong enough to turn into solidarity strikes all over Belarus, Ukraine and Russia. One has to wonder if Japan, the apparently prosperous, developed democracy, would be capable of mounting a solidarity strike to support the families in Fukushima who want to evacuate.

As I write this after having watched Japan in the aftermath of the Fukushima Daiichi catastrophe, Ms. Yaroshinskaya's book reads like a manual of how a society reacts to a large-scale nuclear accident. So much is unfolding in Japan exactly as it did in the Soviet Union. I have the feeling that she has described a situation that will play out wherever there is a nuclear accident in the future, so readers can learn from this and know what to expect if it strikes close to home.

With four hundred nuclear reactors still in service on the planet, most of them nearing the end of their lifespans, and few countries following Germany's lead to shut down nuclear power, it's a safe bet to say that somewhere in the next decades there will be one or more major accidents. What is it going to take to make people understand we can't manage this technology? Chernobyl and Fukushima (as well as numerous lesser accidents at mines, processing facilities and military and experimental reactors) should have been enough, but it seems like an accident will have to happen near a place that counts for global power holders: Los Angeles, Chicago, New York, London, Paris. Note to Japan, content to have bought into enriched uranium technology and General Electric reactor design: In case you haven't figured it out, you still don't matter in this sense.

The list below shows some of the parallels between the Soviet and Japanese responses to their nuclear disasters:

1. In the initial days there is lying, misinformation, and a deliberate attempt to avoid causing a panic.

2. Data on fallout, wind direction and so on is gathered but kept secret. Government claims to have experienced breakdowns and chaotic conditions that made data collection impossible.

3. Reports go out that potassium iodide has been given to the population at risk, but in fact most people who need it don't get it.

4. The legal tolerance level for radiation is increased.

5. Leadership is surprisingly ignorant about the science and the pre-existing state of the nation's reactors. Government seems impotent, incompetent, paralyzed and unable to direct resources to the problem.

6. Evacuation is delayed, then months or years later residents are pressured to return to contaminated land. Officials go into deep denial about the extent of the damage and pour resources into hopeless efforts at decontamination and remediation.

7. National wealth is invested in restoring communities in contaminated areas, then when this mistake is realized, governments cannot acknowledge it.

8. The solution to pollution is dilution. Radioactive debris and food are diluted and spread far and wide to all corners of the country.

9. There is no large-sum settlement fee offered to those who want to resettle far away. Surviving family members of the victims of the collapse of the World Trade Center in New York received million-dollar settlements that allowed them to restart their lives, but there is no such compensation after a nuclear disaster. Instead, various cynical schemes like vouchers and monthly allotments are slowly dripped out in such a way as to tie impoverished people to the land that the government wants to declare "remediated."

10. Funds donated by individuals are misappropriated and used in ways that would outrage the donors. The funds raised by the first public charity ever allowed in the USSR were redirected away from victims then put toward funding visits by foreign scientists who were ushered through the disaster zones by officially appointed obfuscators. In Fukushima, funds from the German Red Cross are being used to build a kindergarten in one of the highly contaminated towns just outside the exclusion zone. [3]

11. Reactor designers, electrical utility management and regulators will attempt to escape liability and prosecution, usually with success. In the case of Chernobyl, station staff were scapegoated and sent to jail, but no one else was prosecuted for the ultimate causes of the accident or the failure afterwards to protect citizens.

12. Scientific and medical opinion is controlled through state support to such an extent that the official conclusions become unassailable. The disaster is declared to have had overall minimal effects on public health, and this becomes the consensus view accepted throughout the world, including by United Nations agencies. Numerous Japanese "experts" on Chernobyl visited the area repeatedly, but their interpretations of the catastrophe were shaped by the state-sponsored scientific and medical community that filtered their interpretations. When disaster struck Fukushima, these misinformed experts repeated the insulting references to radiophobia, and they were put in charge of managing the public health crisis and leading the government's public relations campaign. [4]

13. In the absence of efficient measures to protect the public and compensate all losses, citizens are left to fight among themselves over

their rights. Mothers claim the right to compensated evacuation, while farmers, bankers and businesses demand that everyone should stay, buy the local food and support the local economy. Husbands and wives split up over disputes about the risks. The old want to stay and the young want to leave. Senior citizens complain that their grandchildren don't want to visit anymore. The pressure to keep children (the most vulnerable people to radiation) on the land is particularly cruel, but essential for those who want to revive the economy of the area. They know that without children communities will decline.

14. There is a deep, widespread denial of the nuclear disaster's ability to destroy the environment and the social fabric, and society is helped along in this delusion by the global nuclear industry and the United Nations. (Ironically, the Japanese state media, NHK, actually covered this in a 1996 report condemning the IAEA adoption of the official Soviet lie.) [5]

15. The market talks and bullshit walks. Capitalism is all about freedom and free markets after all. The post-Soviet republics became capitalist and Japan is supposedly capitalist, too. In spite of hypocritical efforts by the government to be a command economy in this instance, forcing people to live on contaminated land, people are free to move away, and they do. Despite efforts to restore the area, it develops a stigma that lasts for a long, long time. Economic decline is inevitable, and it is recognized too late that the money spent on restoration should have been spent on helping people relocate.

16. Just as Chernobyl was a major cause of the weakening of the Soviet system, the meltdowns in Fukushima may play a part, or be a symptom of, fundamental problems with modern capitalism.

Chernobyl: Crime Without Punishment is an essential, powerful wake-up call to the human race to pull out of its state of denial over global nuclear hazards. Chernobyl was supposed to have been "the final warning," but we'll have to say this now about Fukushima. One line that stuck with me after putting the book down was a Russian proverb that Ms. Yaroshinskaya uses to comment on the neglect of Chernobyl victims: *Deception can take you wherever you want to go, but it can't bring you back*. It applies equally to self-deception. Keep that in mind if you think the nuclear waste scattered over the planet—some of it "safely" contained in temporary storage, some of it in the soil and water, some in your bones—is an issue we can afford to

ignore once again.

Notes

[1] UNSCEAR 2008 Report to the General Assembly, Volume II, Scientific Annexes C, D and E, United Nations Scientific Committee on the Effects of Atomic Radiation, 2008, http://www.unscear.org/unscear/en/publications/2008_2.html.
In 2008, the United Nations report on the Chernobyl disaster confirmed the findings of its own 2000 report. It denies contrary reports that Chernobyl had serious health consequences for millions of people living in Russia, Belarus and Ukraine. At one point the authors acknowledge studies showing that liquidators suffered increased rates of cardiovascular and neurological diseases, but they dismiss such findings simply because they contradict previous research. By such logic, Einstein was wrong because he contradicted Newton. The report concludes with these words: "The vast majority of the population were exposed to low levels of radiation comparable, at most, to few times the annual natural background radiation levels and need not live in fear of serious health consequences [As usual with UN reports, the complaints of internal radiation damage are completely ignored]. This is true for the populations of the three countries most affected by the Chernobyl accident, Belarus, the Russian Federation and Ukraine… Lives have been disrupted by the Chernobyl accident, but from the radiological point of view, generally positive prospects for the future health of most individuals should prevail."

[2] Alla, A. Yaroshinskaya, *Chernobyl: Crime without Punishment* (London: Transaction Publishers, 2011).

[3] "Donation via German Red Cross Used to Build Library, Nursery School for Evacuees in Koriyama City in Fukushima," *EXSKF*, January 12, 2012, http://ex-skf.blogspot.com/2012/01/donation-via-german-red-cross-used-to.html.
This blog post includes a translation of an article published by Kyodo News which is no longer online. The article gave this information about the use of the donated funds from Germany: "A facility with the library room and the nursery school opened on January 6 in the temporary housing in Koriyama City in Fukushima Prefecture where the residents from Kawauchi-mura live after having evacuated from their home after the nuclear accident. The facility was built with the money of about 40 million yen (about 408,000 euro, US$520,000) donated via the German Red Cross.

[4] Cordula Meyer, "Studying the Fukushima Aftermath 'People Are Suffering from Radiophobia'," *Der Spiegel*, August 19, 2011, http://www.spiegel.de/international/world/0,1518,780810,00.html.

[5] "NHK Special: The Truth about a Contaminated Land: 20 Years After Chernobyl" (NHK spesharu yogosareta daichi de cherunobiri niju nen go no shinjitsu) (NHK スペシャル 汚された大地で ～チェルノブイリ 20年後の真実～), *NHK*, 2006, https://www.youtube.com/watch?v=ZGYj9XunnzY.

11. Peddlers of the Apocalypse

The prime years of my life are bookended by Chernobyl and Fukushima. All the important things happened there between the ages of 27 and 52. In April of 1986, I was in training for one of my first jobs out of university as a host at the Canada Pavilion of Expo 86 in Vancouver. When the news broke about an explosion at a nuclear power plant in the USSR, I was struck by how little the people around me seemed concerned about it. We were working in a stunning new architectural landmark now known as Canada Place. The views of the mountains and the harbor were spectacular. The staff of young hosts had been selected from all over Canada as if in a modeling audition for the Alfred Sung designed uniforms we had to wear. There were only two things this group wanted to do: work and party.

The Vancouver Sun, Friday, May 2, 1986 ★★★ WORLD A15

Letter warned of safety threat at Chernobyl plant

By PATRICK SLOYAN
Newsday

LONDON — A woman believed to be a senior manager at the Chernobyl nuclear power plant warned a month ago that workers had become frustrated victims of state corruption and incompetence, threatening the safety of the massive Ukrainian complex.

Writing in a Kiev newspaper, Lyubov Kovalevska argued that substandard construction, workmanship and concrete — along with thefts and bureaucratic incompetence — were creating a time bomb.

"The failures here will be repaid," Kovalevska said, "repaid over the decades to come."

Her letter appeared in the March 27 edition of Ukraine Literature. The article does not mention Kovalevska's position at the plant, but Soviet experts here say the tone and details contained in the article indicate she was a senior manager.

The article was written in Ukrainian and signed by Kovalevska, who listed her home as Pripyat, the town for Chernobyl workers and staff. Soviet authorities say the town of about 25,000 people was evacuated after the accident.

Focusing on the construction of a fifth nuclear reactor at the site, Kovalevska said that in the race to make Chernobyl the world's largest atomic power facility, the Soviet ministries had created chaos by advancing completion of the project by one year.

"In citing these facts, I would like to draw attention to the unacceptability of deficiencies in building atomic power stations in general. Each structure must conform to a certain standard, each cubic metre of reinforced concrete must guarantee reliability and, thus, safety."

At Chernobyl, "this is exactly what is lacking."

The Vancouver Sun, Friday May 2, 1986

Everyone was getting ready for the big opening day, the excitement of greeting the world and all the VIPs that would be coming through. Lady Di and Prince Charles appeared at the opening. Vice President George Bush came one day. I saw Prime Minister Brian Mulroney pause to wave at the staff for a few minutes. John Travolta came to see the exhibits one hot summer day, and every female staff member left her post immediately to get a glimpse of him. And this was in the doldrums of his career between *Saturday Night Fever and Pulp Fiction*.

Most days it was an annoying stream of tourists from the Midwest, people seeing mountains and ocean for the first time ever. In the first

week of operations, a nine-year-old child died in the rotating theater that moved the seated audience from the Goose and Beaver show (that was a real thing, I kid you not) in the Canada Celebration Theater to the film in the Earthwatch Theater. The child had made the mistake of sitting on her father's shoulders while the whole platform of seats rotated through a low opening in the wall. I have always felt haunted by this accident because at first look during our training sessions I had thought it seemed dangerous, but I said nothing. I was just hoping I didn't get assigned to this theater where I'd have to be the one pressing the button to rotate the platform. During training, when we were asked, "Any questions?" it was clear they didn't want any pesky questions from the trainees, especially ones like "Who dreamed up this accident waiting to happen?" A week later Expo opened on the grim note of a dead child, but a large compensation was paid out quickly and the show went on. Expo turned a profit and put Vancouver on the map, supposedly. This marked the beginning of a new era for the city when its economy shifted from a dependence on natural resources to a reliance on real estate speculation. Real estate is actually called an "industry" now.

Chernobyl was happening as the background to all of this, and I wasn't busy most of the time when I was just pacing the deck of Canada Place, waiting to "host" and answer questions from the tourists in either of Canada's official languages. Remembering it now, it seems ironic that our Alfred Sung-designed uniform jackets were the color of uranium yellowcake.

There was a lot of time to just look at the big sky and think about what was happening over the horizon on the other side of the world, or to wonder what my counterparts at the USSR pavilion were thinking while they had to put on a brave face for the tourists. There was talk of radionuclides circulating the globe, and a barely-averted second explosion that could have heavily contaminated all of Europe. Years later I learned that the RADNET monitoring post in Revelstoke, British Columbia recorded a big spike in Iodine 131 (251 Bq/cubic meter, on May 13, 1986). But at the time no one around me cared or wanted to understand. The Expo 86 theme was "world in motion, world in touch," or "transportation and communication," but everyone preferred to act as if Ukraine was on another planet. It was strange to realize that this is what it would be like if the world were about to end. There would be no panic. No one would want to stop his daily routine or forget about whatever simple comforts and joys he might have to look forward to. We'll keep shopping and saying "have a nice day" until the very last moment. We couldn't even face up to our own techno-bureaucratic

failure and shut down a theater long enough to properly show remorse for the death of a child.

NEWS IN BRIEF

Expo 86 accident kills girl

VANCOUVER, British Columbia — A 9-year-old girl visiting Expo 86 was killed when she got caught in a large turntable that carries spectators between two theaters at the Canada Pavilion. The death Friday was the first at the week-old world's fair. The girl, from Nanaimo, British Columbia, was trapped for at least two minutes before the mechanism could be reversed, officials said. She was pronounced dead at a nearby hospital. The girl's name was not released. The part of the pavilion where the death occurred was being reopened today, but the turntable was shut down until further notice, said Jim Patterson, Canada Place manager of public relations.

Reported in The Hour, Norwalk, Connecticut, May 10, 1986

Looking back on it now, it seems like after 1986 I went to sleep for the next twenty-five years, most of which I spent in Japan. I forgot about Chernobyl, and seldom thought about what millions of people cohabiting with the fallout were living through, how it had divided their lives into two distinct parts: a pre and a post-catastrophe. In my long sleep I had many nice dreams, one particularly good one in which I was married to a beautiful woman and we had three fantastic children. Such an indulgence. The events of the world—like the many disconcerting incidents at Japanese nuclear plants—sometimes disturbed this dream, but not enough to stop me from getting back to it. It didn't end until the meltdown fallout landed in my yard in March 2011.

Now I'm awake. I can't forget, and I can't go back to sleep. Every April when the Chernobyl anniversary comes around I go back to the oral histories and recall what the catastrophe revealed to people there: a truth about the post-nuclear world that most people prefer not to think about.

You can learn so much more from the oral histories compared to the scientific reports. I reach to the shelf now and thumb through these books like my grandfather once looked through the Bible every April looking for inspiration for his Easter sermon in his small-town Anglican Church.

This year I reread the account of Sergei Gurin, a filmmaker from Minsk who was sent to Chernobyl to record man's historic battle against

his own creation. He began by following the training and habits which told him to point his camera at heroes, and feats of sacrifice and hope, but the radiation slowly broke down all accustomed ways of looking at the world, melted his fear of showing something that didn't fit with standard propaganda. Finally, he saw a question from a child as a voice from the future, something which forever turned his gaze toward that which he said had been completely ignored in Russian culture and Soviet ideology.

Sergei Gurin, cameraman
in *Voices from Chernobyl* (Picador, 2005)
by Svetlana Alexievich, pages 105-114

… I started filming the apple trees in bloom. The bumblebees are buzzing, everything is bridal white. Again, people are working. The gardens are in bloom. I'm holding the camera in my hands, but I don't understand it. This isn't right! The exposure is normal, the picture is pretty, but something's not right. And then it hits me: I don't smell anything. The garden is blooming, but there's no smell. I learned later that sometimes the body reacts to high doses of radiation by blocking the function of certain organs. At the time, I thought of my mother who is seventy-four years old and can't smell, and I figured it had happened to me too. I asked the others. There were three of us: "How do the apple trees smell?"

"They don't smell like anything."

Something was happening to us. The lilacs didn't smell—lilacs! And I got this sense that everything around me was fake, that I was on a film set. And that I couldn't understand it. I'd never read about anything like it…

… One day I filmed people who'd been in concentration camps. They try to avoid meeting one another. I understand that. There's something unnatural about getting together and remembering the war. People who've been through that kind of humiliation together, or who've seen what people can be like, at the bottom, run from one another. There's something I felt in Chernobyl, something I understood that I don't really want to talk about. About the fact, for example, that all our humanistic ideas are relative. In an extreme situation, people don't behave the way you read about in books. Sooner the other way around.

People aren't heroes.

We're all peddlers of the apocalypse. Big and small. I have these images in my mind, these pictures. The chairman of the collective farm wants two cars so that he can transport his family with all its clothes and furniture, and so the Party organization wants a car too. It demands fairness. Meanwhile, I've seen that for several days they don't have enough vehicles to transport kids to nursery school. And here two cars aren't enough to pack up all their things, including three-liter cans of jam and pickled vegetables. I saw how they packed them up the next day. I didn't shoot that, either. We bought some salami, some canned food, in the store, but we were afraid to eat it. We drove it around with us, though, because we didn't want to throw it out.

The mechanism of evil will work under conditions of apocalypse, also. That's what I understood. Man will gossip, and kiss up to the bosses, and save his television and ugly fur coat. And people will be the same until the end of time. Always.

… I have this big, long film in my memory, the one I didn't make. It's got many episodes. We're all peddlers of the apocalypse.

One time we went with the soldiers into a hut, and there was an old lady living there.

"All right, grandma, let's go."

"Sure, boys."

"Then get your things together, grandma."

We wait outside, smoking. And then this old lady comes out: she's carrying an icon, a cat, and a little bundle in a knot. That's all she's bringing.

"Grandma, you can't bring the cat. It's not allowed. His fur is radioactive."

"No, boys, I won't go without the cat. How can I leave him? I won't leave him by himself. He's my family."

Well, with that old lady, and with that apple tree that had no smell, that's when I started. Now I only film animals. I once showed my Chernobyl films to children, and people were mad at me: why did you do it? They don't need to see that. And so the children live in this fear, amid all this talk, their blood is changing, their immune systems are disrupted. I was hoping five or ten people would come; we filled the whole theater. They asked all sorts of questions, but one really cut into my memory. This boy, stammering and blushing, you could tell he was one of the quiet ones, asked: "Why couldn't anyone help the animals?" This was already a person from the future. I couldn't answer that question. Our art is all about the suffering and loves of people, but not everything living. Only humans. We don't descend to their level: animals, plants, that other world. And with Chernobyl man just waved his hand at everything.

I searched. I asked around, and I was told that in the first months after the accident, someone came up with a project for evacuating the animals along with the people. But how? How do you resettle them? Okay, maybe you could move the ones that were above the earth, but what about the ones who were in the earth—the bugs and worms? And the ones in the sky? How do you evacuate a pigeon or a sparrow? What do you do with them? We don't have any way of giving them the necessary information. And also it's a philosophical dilemma. A perestroika of our feelings is happening here.

I want to make a film called *Hostages*, about animals. A strange thing happened to me. I became closer to animals. And trees and birds. They're closer to me than they were, the distance between us has narrowed. I go to the Zone now, all these years, I see a wild boar jumping out of an abandoned human house, and then an elk. That's what I shoot. I want to make a film, to see everything through the eyes of an animal. "What are you shooting?" people say to me. "Look around you. There's a war on in Chechnya." But Saint Francis preached to the birds. He spoke to them as equals. What if these birds spoke to him in their language, and it wasn't *he* who condescended to *them*?

-Sergei Gurin, cameraman, in *Voices from Chernobyl* (Picador, 2005), by Svetlana Alexievich, pages 105-114.

12. No Place to Run After Three Mile Island

After the earthquake-tsunami-meltdown syndrome occurred in March 2011, people outside Japan often asked me, “Why do you stay in Japan?” I never felt that I had a satisfactory answer for myself or for others until I came across a series of radio documentaries on nuclear issues aired by the Canadian Broadcasting Corporation in the 1990s. In Part 3 of this series (*Counting the Costs Part 3—Chalk River to Chernobyl*), there was an interview with Jane Lee, a farmer from Etters, Pennsylvania, who became active in various public-awareness groups following the accident at the Three Mile Island Nuclear Station on March 28, 1979. In this short interview (transcribed below), she gives the best answer I can think of to the “why I stay” question:

> 70% of the core has been compromised, and they are in a process now of grinding up the core to remove it from the reactor [a process which lasted until 1990], and as they do that, of course, they are constantly having emissions coming from the plant. The infant mortality rate in this area doubled. But what is even more alarming than that is the enormous increase in cancer deaths in children in the four counties surrounding Three Mile Island. Compared to the numbers previous to the accident that the health department listed even just on leukemia.
>
> We have done an in-depth report on plant life where we are seeing many mutations… All the birds on the farm disappeared. It looked like winter. And not only did we see complete defoliation, we saw trees that were defoliated at different levels.
>
> Interviewer: Why do you stay here?
>
> I think that most people can understand when you talk about roots. You

> set down roots in a community. And you are part of that community. That's one reason, but the main reason that we will not move is because we went to a map and we looked and there's no place to run. There is no place to run. The United States right now is operating 101 nuclear power plants—that's commercial plants. We're also operating university reactors, we're also operating military reactors, and then you have the processing plants, and the processing plants are the worst violators of all because they are dumping tons, and I say tons, of uranium dust into the atmosphere. So if you move from here—here you know what you've got—even if you're living in danger—you know what's here. We know what came out of the plant now, and so, why do we want to run some place and start the process all over?
>
> 50% of the people in this area left. They sold their properties and they went. And you know what happened? They're just as close, or almost as close to a reactor as where they left here. So it's futile to think that you're going to escape this. You have to stand your ground. You have to do your research and you have to challenge your government and say you cannot continue to do this because you're going to kill this planet.
>
> This population [in the Three Mile Island area] is very passive and very conservative. Most of the people in this area don't want to talk about it. They don't want to read about it. They simply know, and they have a feeling of helplessness about their own government. Now, we're not talking about Russia. We're talking about the good old USA. [1]

Whether Jane Lee's answer is sensible depends on the level of contamination one is living with. In heavily contaminated areas it would make no sense to stay, but for people who are in areas of lighter contamination, and for whom the initial wave of Iodine 131 and Xenon 135 (now decayed away) can't be undone, the decision is not so clear cut. Sometimes it makes more sense to take precautions with food, monitor the health of living things around you, and, like she says, "stand your ground."

Further information about the work of Jane Lee appears in various reports about the Three Mile Island "accident"—a word which the CBC report suggests should be replaced with something that means "an unfortunate event foreseeable because of previously known hazards."

In the article *People Died at Three Mile Island*, Harvey

Wasserman describes how the TMI operator, and the Pennsylvania and US government downplayed the consequences of the accident and reneged on promises to carry out thorough health studies. He states, "… the most reliable studies were conducted by local residents like Jane Lee and Mary Osborne, who went door-to-door in neighborhoods where the fallout was thought to be worst. Their surveys showed very substantial plagues of cancer, leukemia, birth defects, respiratory problems, hair loss, rashes, lesions and much more." [2]

Such research has been routinely dismissed with pejorative connotations by the use of the word "anecdotal." If hundreds of people in an area report the sudden onset of health problems after a nuclear accident, but the researcher is deemed to be just an unqualified farmer-activist (not participating in officially sanctioned research), the findings are treated contemptuously with such zingers as "the plural of anecdote is not data." [3] Actually, the plural of anecdote in much academic research is data. If you describe your symptoms to a citizen mobilizing her own research project, you are telling anecdotes. If you describe your symptoms to an approved researcher, you're giving data.

Wasserman also cites the work of Arnie Gundersen, [4] a nuclear engineer who left the industry in order to pursue anti-nuclear work. He quotes Gundersen as saying, "When I correctly interpreted the containment pressure spike and the doses measured in the environment after the TMI accident, I proved that TMI's releases were about one hundred times higher than the industry and the NRC claim, in part because the containment leaked. This new data supports the epidemiology of Dr. Steve Wing and proves that there really were injuries from the accident." Dr. Wing's findings have been rejected by many because they were inconsistent with what was believed to be the possible effects of the known releases from TMI. This inconsistency disappears if Gundersen is correct that the releases were a hundred times higher than previously thought.

Notes

[1] "Counting the Costs Part 3: Chalk River to Chernobyl," Canadian Broadcasting Corporation Radio, 1997, https://app.voicebase.com/voice_file/public_detail/48622/refine/%22mile+island%22.
This podcast consists of a reposting of a radio show first broadcast in 1997 which consisted of discussion and reposting of a documentary produced in 1986. The interview with Jane Lee appears to have been conducted in 1986.

[2] Harvey Wasserman, "People Died at Three Mile Island," *Nukefree.org*, 2010, http://nukefree.org/news/peoplediedatthreemileisland.

[3] Anonymous, "Noisome Falsehoods About Three Mile Island," March 24, 2009, http://sovietologist.blogspot.jp/2009/03/noisome-falsehoods-about-three-mile.html.

[4] Arnie Gundersen, "Three Mile Island," Fairewinds.org, http://www.fairewinds.org/three-mile-island.

13. IAEA Too Distracted to Deal with Nuclear Energy Regulation

There are many anti-nuclear advocates who work toward the abolition of nuclear weapons but hold onto a belief that nuclear energy could be deployed in a world made free of nuclear weapons. Others define anti-nuclearism as opposition to both nuclear weapons and nuclear energy. They argue that simply the extraction of uranium from the ground poses unacceptable risks and leads unavoidably to nuclear weapons proliferation. It would be impossible for any international regulator to supervise and prevent nuclear reactor operators from diverting spent fuel to weapons production. The actual state of nuclear regulation in the world, not an imagined future state, shows that this problem has already been illustrated. In addition to its neglect of many hazards, the IAEA has no enforcement powers.

An article published in *Bloomberg Business* Week in late 2011 (the farthest thing one could imagine from a bastion of left wing, peacenik radicalism) makes the connection between nuclear weapons proliferation and nuclear reactor safety. It is noteworthy that it is not just the granola and sandals crowd that wants nuclear safety to be overhauled. Corporations have their vital interests at stake, too. The article describes how the IAEA is not sufficiently empowered or funded to police both nuclear weapons and nuclear energy, and the emphasis on the former led to serious lapses in the latter.

The reports describes how the IAEA has devoted most of its resources to stopping "rogue states," from obtaining nuclear weapons, while enforcement of reactor safety has been ineffective and collusive with the industry it is supposed to oversee. In recent years, pro-American (and thus pro-Israel) officials from the Japanese nuclear industry were promoted to high positions in the IAEA for their tough-on-Iran positions. Yet at the same time, there was concern in diplomatic circles about this emphasis. The Bloomberg article describes how the rise of Japanese nuclear bureaucrats in the IAEA was related to their willingness to go along with American and

Israeli interests:

> Since coming to office in 2009, Amano has spent five times more money fighting terrorism and preventing proliferation than on making the world's 450 nuclear reactors safer…
> The agency's safety division garnered little respect in U.S. diplomatic cables that described the department as a marketing channel for countries seeking to sell atomic technology.
> They also questioned the credentials of Tomihiro Taniguchi, the IAEA's former head of safety who helped create the regulatory regime in Japan, which is being blamed for failings that led to the Fukushima disaster.
> "The department of safety and security needs a dedicated manager and a stronger leader," U.S. IAEA Ambassador Glyn Davies wrote in December 2009 in a cable released by Wikileaks, the anti-secrecy website. "For the past 10 years, the department has suffered tremendously because of Deputy Director General Taniguchi's weak management and leadership skills."
> The U.S. backed Amano's bid to replace Mohamed ElBaradei in 2008 because he was believed to be supportive on confronting Iran. ElBaradei was accused by the U.S. and its allies of overstepping his IAEA mandate in seeking compromise solutions to resolve the Iranian nuclear issue. Amano was "solidly in the U.S. court," according to a U.S. cable in October 2009 released by Wikileaks. The U.S. IAEA mission declined to comment on the cables. [1]

The flaw of the Bloomberg article is that it doesn't trace the roots of this problem back far enough. It is extremely rare to find any article in commercial media about the role that Israel's undeclared nuclear weapons have in the long history of attempts to stop nuclear weapons proliferation in the Middle East and South Asia. It is Israel's insistence on keeping its nuclear arsenal, and keeping it undeclared and untouchable by IEAE inspectors, that motivated Iraq and Libya, and now Iran, to have their own arsenals. In her comprehensive history of the nuclear age, *In Mortal Hands*, Stephanie Cooke describes the situation this way:

> …. the United States adjusted, and readjusted, its sights. How, after all, should it respond to what it knew was happening? Each new entrant to the nuclear weapons club would over time pose the same conundrum. Could they be stopped? Should they be stopped? And if so, how? In

> Israel's case, accommodation became the easiest way out, but there would be a price to pay for that, in Iraq, then in Libya, and more recently in Iran. But it also added to reasons for restraint against India, and hence Pakistan, after those countries joined the club, because any other response would have raised questions about the treatment of Israel. [2]

The world found out about Israel's undeclared possession of nuclear weapons thanks to the Israeli dissident nuclear scientist Mordechai Vanunu who was illegally extradited (abducted) from Italy by Israeli agents. He has lived imprisoned or under house arrest for the last twenty years for the crime of having told the world about Israel's covert nuclear weapons. [3]

Thus there is a connection between Iran's nuclear weapons program and the Fukushima Daiichi catastrophe. Iran could have been demotivated from developing nuclear weapons if Israel and other nuclear powers had made serious proposals about disarmament and creating a nuclear-free Middle East. With that distraction out of the way, there would have been no pressure to promote individuals who were products of the collusive and incompetent Japanese nuclear regulatory culture. Serious efforts could have been made to secure the safety of nuclear reactors, decommission aging plants, put diesel generators out of the reach of tsunamis, and find the best option for long-term storage of nuclear waste. However, in reality, the dread of nuclear weapons has diverted international attention from preventing the nuclear disasters that have actually happened.

The result of this misguided approach was the destruction of at least 8,000 square kilometers of human habitat in Japan, destruction of the natural environment, a massive poisoning of the North Pacific, and an unknowable amount of future diseases and destruction of livelihood for the people of Japan, and the intractable problem of what to do with three melted reactor cores, in addition to the tons of spent nuclear fuel under the twisted metal wreckage of Fukushima Daiichi NPP Unit 3. Other pressing issues, like giving the IAEA the authority to shut down dangerous reactors, still remain, which is something the former head of the IAEA, Mohamed ElBaradei (who was replaced by Amano because he was considered too soft on Iran) has spoken of as an urgent necessity. [4] Meanwhile, no nuclear incident has happened in the Middle East, unless you want to count the scattering of depleted uranium throughout Iraq since the first Gulf War in 1991.

Notes

[1] Aaron Sheldrick and Jennifer M. Freedman (Editors), "UN Atomic Agency Money Goes to Terror Fight, Not Nuclear Safety," *Bloomberg Business Week*, December 2011. The article is no longer online.

[2] Stephanie Cooke, *In Mortal Hands: A Cautionary History of the Nuclear Age* (New York: Bloomsbury, 2009), 229.

[3] Ibid, 241-242.

[4] Jean-Michel Bezat and Bertrand d'Armagnac, "'On ne peut se passer du nucléaire' (We Cannot Do Without Nuclear Energy)," *Le Monde*, September 28, 2011, http://www.lemonde.fr/planete/article/2011/09/28/mohamed-elbaradei-on-ne-peut-se-passer-du-nucleaire_1578873_3244.html#meter_toaster.
This former head of the IAEA was, unsurprisingly, in favor of continuing with nuclear energy, but he advocated for stronger action being taken towards some of the aging and unsafe nuclear reactor designs in the world: "We shouldn't hesitate to close old reactors the safety of which cannot be guaranteed. I suggest starting with the RBMK type (as at Chernobyl) which don't have a containment structure, and reactors of the same type as at Fukushima. We also have to have a way of inspecting military reactors."

14. Sin Now, Ask Forgiveness Later

The Fukushima Daiichi catastrophe got renewed world-wide coverage in the mainstream media in August 2013 as TEPCO made new "revelations" and "admissions" about the flow of contaminated water coming out of the ruins of the nuclear power plant. Although the situation is newsworthy and TEPCO's handling of the situation has been outrageous, we have to realize that even after these admissions, the narrative about the situation that they are pushing is still false.

The narrative presented in news reports was that the contaminated water was somehow unexpected, and TEPCO were slow in revealing the truth of the situation simply because they were overwhelmed and made errors in judgment recently under the pressure of dealing with a series of surprising events.

In fact, there is nothing surprising at all about this situation. In the early days of the crisis, anti-nuclear groups claimed that it was a certainty that reactors 1 to 3 had melted down, but they were accused of spreading fear and false rumors. TEPCO, the Japanese government and every knowledgeable expert working in the nuclear field knew that they were correct, but they could not breach their omerta, so in a global unified voice they all refused to "speculate" on the condition of the reactor cores. Two months later, there was official admission that the meltdowns had indeed occurred and no one knew the condition or location of the melted cores. The apologies were made for regrettably bad decisions made under pressure, but in fact the delay was deliberate and pre-meditated. It was an instance of acting on the proverbial wisdom of not asking for permission but rather doing what you want to do now and asking for forgiveness later.

The water problem was well understood at the time as well. Critics like nuclear engineer Arnie Gundersen have raised the issue repeatedly. In a video from April 2011, nuclear industry critic Chris Busby stated the inevitability of it "all going to the sea." [1] The cores melt, pieces of them stay in the ruins of the reactor and/or some pieces of them melt into the ground, but they are all fissioning and hot for a long, long time, so they have to be constantly cooled by water, and that water has to go back to the

ocean. TEPCO has tried to filter out most of the contaminants, but it is not possible to filter out radioactive isotopes of hydrogen (tritium) which has become tritiated water. You can't easily separate so much tritiated water from normal water. (Canadian nuclear operators have some expertise in this area, but they handle fresh water, and smaller volumes than what TEPCO has on its hands). So they tried storing the water in hastily built tanks, but it has become obvious recently the number of tanks needed will far exceed what is practically possible.

The regulatory limits, the fear of angering fishermen and the public, and the need to save the reputation of the nuclear industry have all prevented the Japanese government from taking the action which will eventually be necessary. As Dr. Busby said two years ago, "It all goes into the sea." What we have had is two and half years of crisis management and crafting of a narrative that the situation has been stabilized—put in "cold shutdown"—but now we get the admission of an "unexpected" change in circumstances and many bowed heads and deep apologies. What we are not being told is that all of this is another piece of the pre-meditated theater, just like the apology for not reporting the fact of the meltdowns when it was known. The strategy has always been to postpone telling the truth until the issue disappears be from the front pages of the news. From the beginning, every nuclear expert in the world knew that it all goes to the sea.

Strangely enough, it turns out that even Dr. Busby, who is well known for accusing the nuclear industry of downplaying the health effects of radiation, agrees that the contamination that is flowing out of Fukushima Daiichi is not going to present much risk for people on the other side of the Pacific Ocean. In his recent article published in *Russia Today* he wrote:

> … the Pacific Ocean is big enough for this level of release not to represent the global catastrophe that some are predicting… So the people in California can relax. In fact, the contamination of California and indeed the rest of the planet from the global weapons test fallout of 1959-1962 was far worse, and resulted in the cancer epidemic which began in 1980. The atmospheric megaton explosions drove the radioactivity into the stratosphere and the rain brought it back to earth to get into the milk, the food, the air, and our children's bones. Kennedy and Khrushchev called a halt in 1963, saving millions. [2]

So if this is the case, why all the apparent guilt and regret now about having to dump contaminated water into the sea? If it is inevitable, why not

just get on with it. Delays are only worsening the situation. For example, by trying to hold back the water behind a constructed barrier, TEPCO has raised serious concerns that the ground will be softened and structures will be less likely to withstand earthquakes. What is to regret here is that the catastrophe ever happened at all. There is no use now in worrying about offending fishermen or outraging the public. The outcome of it all going to the sea was achieved the day the meltdowns happened.

The truly regrettable aspect of the situation is the denial of reality and the creation of the distorted narrative that was set up to protect the fortunes of the global nuclear industry. TEPCO and the national government are presently uttering staged apologies for a pre-meditated delayed release of information. They knew two years ago that this day would come when they would have to talk about the water problem, but they consciously planned to lie low and lie at that time, then confess and ask for forgiveness later. It is all a part of the crisis management plan, which is not so much to manage the crisis per se but to manage the damage to the fortunes of the nuclear industry. For the past thirty months Japan has preferred to forget the catastrophe and carry on with plans to sell billions in nuclear technology to India, Turkey and Vietnam.

In his editorial, Dr. Busby went on to discuss what he perceives to be the real danger that Japanese officials should be talking about honestly with their citizens. Unfortunately, the advice is to not breathe within one kilometer of the shoreline, 200 kilometers north and south of Fukushima Daiichi. The establishment of such an exclusion zone would be an unacceptable blow to the reputation of nuclear energy, and to the preferred narrative of Prime Minister Abe that the nation is fit to host the 2020 Olympics and "Japan is back"—back from what or to what, no one knows. So people who breathe the sea breeze on a daily basis are not likely to get a warning. I finish with another excerpt from Dr. Busby's editorial:

> What we have here in Fukushima is more local, but still very deadly and certainly worse than Chernobyl since the populations are so large. And this brings me to my second point, and a warning to the Japanese people. The contamination of the sea results in adsorption* of the radionuclides by the sand and silt on the coast and river estuaries. The east coast of Japan, the sediment and sand on the shores, will now be horribly radioactive. This material is re-suspended into the air through a process called sea-to-land transfer. The coastal air they inhale is laden with radioactive particles. I know about this since I was asked in 1998 by the Irish State to carry out a two-year

> study of the cancer effects of releases into the Irish Sea by the nuclear reprocessing plant at Sellafield… Results showed a remarkable and sharp 30 per cent increase in cancer rates in those living within 1km of the coast. The effect was very local and dropped away sharply at 2km. In trying to discover the cause, we came across measurements made by the UK Atomic Energy Research Establishment. Using special cloth filters, they had measured plutonium in the air by distance from the contaminated coast. The trend was the same as the cancer trend, increasing sharply in the 1km strip near the coast… By 2003, we had found 20-fold excess risk of leukemia and brain tumors in the population of children on the north Wales coast… the sea-to-land effect is real. And anyone living within 1km of the coast to at least 200km north or south of Fukushima should get out. They should evacuate inland. It is not eating the fish and shellfish that gets you—it's breathing. [3]

* Adsorption is the adhesion of atoms, ions, or molecules from a gas, liquid, or dissolved solid to a surface. This process creates a film of the adsorbate on the surface of the adsorbent. This process differs from the process of absorption, in which a fluid (the absorbate) permeates or is dissolved by a liquid or solid (the absorbent).

Notes

[1] "Busby: Can't seal Fukushima like Chernobyl - it all goes into sea," *Russia Today*, April 25, 2011, https://www.youtube.com/watch?v=x-3Kf4JakWI&feature=youtu.be.

[2] [3] Christopher Busby. "Pump and pray: Tepco might have to pour water on Fukushima wreckage forever." *Russia Today*, August 7, 2013, http://rt.com/op-edge/tepco-fukushima-sea-water-reactor-194

15. Reasons to Oppose the India-Japan Nuclear Deal

In late July and early August, 2014, Kumar Sundaram, a leading member of India's Coalition for Peace and Nuclear Disarmament, visited several Japanese cities in order to speak to the mass media and Japanese citizens about the proposed Japan-India nuclear energy agreement. He timed his visit to Japan to precede that of Indian Prime Minister Narendra Modi at the end of August. Modi met with his Japanese counterpart in hopes of finalizing a deal to allow the purchase of vital components of nuclear power plants that are proposed or under construction.

Mr. Sundaram wished to draw attention to numerous problematic aspects of India's nuclear energy ambitions, negative aspects which the mass media, intellectuals and politicians have failed to criticize sufficiently.

On July 31, 2014, Mr. Sundaram gave a press conference in Tokyo at the Foreign Correspondents' Club of Japan. [1] During his hour at the microphone, he gave a detailed explanation as to why he believes the plans for nuclear energy development in India will lead to disastrous consequences for both India and foreign countries. [2] This report summarizes the information given by Mr. Sundaram, with additional background information and commentary.

The Nuclear Energy-Nuclear Weapons Connection

Since India tested its first nuclear weapon in 1974, it has had pariah status as a nuclear power. Like Pakistan and Israel, it possesses nuclear weapons but never signed the Non Proliferation Treaty (NPT). North Korea was once a signatory, but it later withdrew from the treaty.

In response to India's first test of a nuclear weapon, the Nuclear Suppliers Group was formed by Canada, West Germany, France, Japan, the Soviet Union, the United Kingdom, and the United States in order to stop exports of nuclear technology to countries that refused to sign the NPT. In 1998, after another nuclear test, India faced further sanction, but the pressure decreased after Western nations shifted their emphasis to

"the war on terror." At the same time, their nuclear energy suppliers grew more interested in exporting nuclear technology to developing nations, and the Indian market was too tempting to ignore. During the G.W. Bush presidency (2001-2008), ways were found to skirt around the problems with India's status as an intransigent possessor of nuclear weapons, and thus the US-India Civilian Nuclear Agreement came into force in 2008. This waiver made India the only known country with nuclear weapons which is not a signatory to the Non-Proliferation Treaty (NPT) but is still permitted to engage in nuclear commerce with the rest of the world.

Kumar Sundaram gave a guest lecture at the Center for Glocal Studies in November 2016.

In addition to the US deal, India now has bilateral arrangements with France, Canada, Russia, Nigeria, Kazakhstan, and Australia. The present push for a Japan-India agreement could be seen as a multi-lateral effort that aims to facilitate nuclear deals for multinational corporations.

The preferential treatment for India set an obvious dangerous precedent. It signaled to other nations that there was a double standard, and it suggested that if they too defy international agreements to not develop nuclear weapons, they merely need to endure rogue status until pragmatic considerations force other nations to legitimize their nuclear power status. It signaled to China that the US was tacitly approving India's nuclear weapon status in order to have a strategic balance to China in the region. It signaled the same to Pakistan, with the added message that its political instability would prevent it from getting the same treatment as India.

In spite of the opening for nuclear energy created by the US-India Civilian Nuclear Agreement, there was still a drawback in the works. The major American corporations that want to build India's reactors have become American-Japanese hybrids such as GE-Hitachi and Westinghouse-Toshiba. Other corporations building plants in India are dependent on parts from these companies. In order for construction to proceed, a Japan-India deal is necessary, but traditionally Japan has taken a hard line against nuclear weapons proliferation, the obvious reason being its status as the only victim of nuclear weapons in an act of war.

The present Japanese government is willing to abandon the strong stance on disarmament and non-proliferation and instead just pay lip service to the issue, as it did in August 2014 with regard to the 69th anniversary of the bombings of Hiroshima and Nagasaki. The *Times of India* reported that on August 10th, the foreign ministers of India and Japan, Sushma Swaraj and Fumio Kishida, met on the sidelines of the ASEAN Regional Forum to exchange what, to a skeptical eye, was no more than cynical pieties regarding the Hiroshima memorial. The *Times* report played up the fact that Kishida is from Hiroshima, as if that necessarily makes one sincere on nuclear proliferation issues. Then it portrayed an Indian parliamentary observance of silence for Hiroshima as a blessing by the people of both countries for everything that the two nations are planning to do with regard to nuclear energy development. After this brief ritual of mutual flattery, both ministers emphasized it was time to cut to the chase, to finally sign a civilian nuclear trade deal, regardless of the numerous valid objections their own citizens have.

No matter how much the Indian and Japanese governments would like to pretend otherwise, nuclear weapons and nuclear energy are inextricably linked, especially in South Asia. For India, the primary motive for pursuing nuclear energy is to obtain legitimacy for its nuclear weapons. In this pursuit, all other considerations have been ignored. The government has not considered whether nuclear energy is worth pursuing in terms of its social, environmental and economic costs.

Neglecting safety, local opposition, environmental damage, economic viability, and the decline of nuclear energy in developed nations

Mr. Sundaram pointed out that even among various Indian government agencies the methods of developing nuclear energy have not been unanimously approved. Official environmental reviews have raised strong objections. Even among those who are, in general, supportive or undecided

about nuclear power have voiced objections about the methods and the scale of the nuclear expansion. Nonetheless, diplomatic imperatives always sideline these concerns.

For example, after the Bhopal disaster, laws were strengthened to make foreign corporations liable for the damage they may cause, but these laws are now being rolled back in order to please the corporations that are building nuclear reactors. The citizens' right to information is being curtailed for the benefit of foreign corporations as well. The comptroller and auditor general raised severe concerns about nuclear regulation, and secretaries from eight ministries said they are not in a position to deal with a nuclear emergency. Local opposition to plant construction has been brutally oppressed, with trumped up charges of vandalism and violence laid on peaceful protesters. Five thousand people have been charged with sedition because the government now construes opposition to nuclear energy as treason. Nonetheless, the protests continue. Security agencies now keep files on organizations such as the Coalition for Nuclear Peace and Disarmament (CNDP), Greenpeace, and individual activists (including Mr. Sundaram) because they are defined as threats to national economic security. If they obtain funding or seek international solidarity in any way with groups and activists abroad, they are viewed all the more as traitors.

During the question period after the news conference, I asked Mr. Sundaram to speak about the front end and back end of the nuclear cycle; that is, to describe India's record in dealing with safety and environmental issues in uranium mining and processing, and issues in the disposal of nuclear waste. [3] He said there have been significant health and environmental impacts from mining, all documented by independent scientists, but the government has continued with complete unaccountability. As for the waste problem, the government is in "complete denial," asserting even that there won't be any waste to worry about for another thirty years.

Mr. Sundaram concluded by emphasizing that the pursuit of nuclear energy is an anachronism. India has been targeted by multinational corporations who can no longer make profits from nuclear energy in the countries where they built plants in the past. In this sense, India might be the lynchpin that the global nuclear industry is depending on for its survival. Indian elites are allowing themselves to be used in this way in order to legitimize the nation's status as a nuclear power, but they have failed to consider whether it is necessary for any other reason. Since India has a chronic trade deficit, these very expensive, high technology deals will be financed by debt that the country cannot afford. Nuclear energy should

be opposed in India because it is an undemocratic, unsafe, uneconomic, unaccountable expansion of a technology that will bring (and already has brought) horrors and great costs on the nation's most vulnerable people.

Citizens of Chutka, Madhya Pradesh, India, protest the expansion of nuclear energy in their region.

Notes

[1] "Press Conference: Kumar Sundaram, Senior Researcher, Coalition for Nuclear Disarmament & Peace CNDP," *Foreign Correspondents' Club of Japan*, July 31, 2014, http://www.fccj.or.jp/events-calendar/icalrepeat.detail/2014/07/31/1794/-/press-conference-kumar-sundaram-senior-researcher-coalition-for-nuclear-disarmament-peace-cndp.html. Link for video file: https://www.youtube.com/watch?v=avcRIF1k2uk.

[2] Praful Bidwai, "Four years after Fukushima, India is flogging a nuclear dead horse," *prafulbidwai.org*, http://www.prafulbidwai.org/index.php?post/2015/03/19/Four-years-after-Fukushima%2C-India-is-flogging-a-nuclear-dead-horse. Praful Bidwai was a veteran journalist who wrote extensively on the theme covered by this Kumar Sundaram at this press conference.

[3] Priyanka Loach, "Jadugoda: Realities of India's Nuclear Dream," *Dianuke.org*, January 16, 2014, http://www.dianuke.org/jadugoda-realities-of-indias-nuclear-dream/.

16. Rolling Stewardship for a Tortoise

Imagine, if you will, a tortoise. You are a forty-year-old parent and your ten-year-old daughter brings home a baby tortoise that she wants to keep as a pet. You permit her to keep it, and the creature quickly becomes a most cherished member of the family. After some time goes by, you realize that this is no ordinary turtle. It's one of the famous Galapagos tortoises that live for 170 years. Suddenly your daughter is very distraught that no one alive in the family now will be around to take care of the tortoise in the last half of her life. Not only is it a little stressful for your daughter to contemplate her own mortality at this young age, but it's unusual that the whole family has been forced to consider its obligation to care for a living thing into the distant future.

In order to put your daughter's mind at ease, you promise that you are going to make sure that someone will always be there to care for the beloved tortoise. You come up with the concept of rolling stewardship, the ongoing care of a responsibility across generations. Instructions will be written down, grandchildren will be taught, the tortoise will be honored like a sacred creature in family tradition. But still it is not so simple because you realize that when it comes down to it, no one knows what is going to happen. It is impossible to give a 100% guarantee that the tortoise will be protected long after you and your living kin are gone from this earth.

Obviously, I'm using this story as a way to relate the problem of nuclear waste to something mundane that can be grasped as a matter of simple common sense. The tortoise-management problem makes it clear that we have no control over what will happen after our death, and that goes without saying how little control we have over our destinies while we are alive. We have no financial incentive to say, "Yes, absolutely, we can guarantee that the tortoise will be cared for. Our tortoise protection culture is infallible." To say such a thing would be laughable. Yet when a nuclear "safety" bureaucracy utters such inane promises about its ability to control the distant future, the public is expected to accept them as reasonable, and quite often it does.

The problem of the tortoise does not involve a high-consequence risk.

If she dies an untimely death in her second century, that's a tragedy for her and the family that loved her, but not for an entire ecosystem. In contrast, when it comes to nuclear waste, we need the 100% guarantee, but it is, of course, impossible. If someone tells you that a plan to bury nuclear waste is safe, just remember this one self-evident truth that can be perceived by anyone with a normally functioning brain: no one knows what is going to happen.

Unfortunately, institutions are like organisms that care only about their own survival. They are programmed to perpetuate their own existence. When simple logic and facts get in the way, they adopt the four-D strategy: divert, deflect, deny and deceive, and that last item on the list includes heavy doses of self-deception as well. This should not be surprising. We should get over being outraged. We should not expect the nuclear industry (which includes its supposed safety regulators) to suddenly understand it has to do the right thing and fold up its operations. We should realize that these organizations are going to do what they do until they are stopped by an opposing force.

If we put aside concerns about accidents and costs, we can see that the unsolvable problem of nuclear waste disposal is enough reason to put an end to nuclear power. Who would continue to use a toilet that doesn't flush? The public has given its assent to nuclear power and nuclear weapons because it has been told that nuclear waste burial is the solution and it will be achieved soon, always sometime soon. This promise works because it makes intuitive sense that this should be the solution. Throughout human evolution burial has sufficed as a way to deal with unwanted substances. Out of sight was out of mind. The earth could deal with whatever we threw in it because our waste was, until the Industrial Revolution, always organic or relatively harmless.

The nuclear industry now seems to be getting nervous that the public is waking up to the fact that the burial solution just doesn't exist. Projects like the Yucca Mountain project in Nevada have failed partly because of NIMBY (not in my backyard) political objections, but more importantly because of legitimate technical conclusions that the long-term stability of the waste containers and the geological features of the site could not be guaranteed. When confused, repeat the mantra: no one knows what is going to happen.

But why should you take it from me? Listen to what these highly qualified scientists have to say about the subject:

1. Jean-Pierre Petit, former director of France's *Centre national de la*

recherche scientifique in an interview broadcast by *Sputnik France* speaking about French plans to bury nuclear waste in Bure, France:

> … the storage of wastes with long half-lives poses acute problems. In general, there are two sorts of wastes. There are those that can be called "passive," like asbestos, and those that can be called "active" that evolve chemically, decompose, and eventually produce flammable gas, and heat. Nuclear wastes obviously belong in the second "active" category. They release heat by their exo-energetic transmutation. So storage sites require powerful ventilation systems that need to be maintained for centuries. Some wastes that are plastic decompose relatively quickly, releasing hydrogen. When the air reaches 4% hydrogen, it becomes explosive.
>
> In the year 2000, they began to store various types of waste, one of which was mercury, underground at a mine in Alsace. In 2002, a fire broke out. They wanted to get everything out, but they realized it could never be recovered… A fire in a mine is more complicated to manage than a fire above ground. It's like an oven. The heat has no way out. A small fire can quickly result in elevated temperatures at which the containers begin to melt.
>
> In Bure [France], a fire would be catastrophic. The wastes are vitrified (in a glass-like state), but glass is not really a solid. It's a very viscous fluid. At ordinary temperatures, it can do the job for thousands of years. It is not soluble. But the weak point of glass is its low resistance to heat. At 600°C, the glass will flow and liberate its contents. Underground, this temperature could be reached very quickly. In the mine there are also support structures made of metal and reinforced concrete. Concrete melts above 1100°. The clay in Bure is also saturated with water. It couldn't withstand being heated above 70°. The creators of the CIGEO project have great faith in a material called bentonite with which they hope to seal the caverns. It's a particular type of clay that can absorb water and dilate, but it has the same problem as clay in terms of heat resistance.
>
> Fire hazards come not only from the concern about hydrogen explosions. The plan at Bure is to deposit some elements treated with bitumen, but bitumen becomes fluid at 60° and flammable at 300°. Any way you look at it, this project is absurd.

> The only thing to do now is to leave everything on the surface, even for centuries if necessary, as a way to make them less toxic by transmutation. There is no hurry. But the government and the barons of nuclear are exerting an enormous pressure to begin burial by 2015. They want to hide all signs of the nuisance that has accumulated for half a century and given nuclear energy such a bad image. If the CIGEO project is realized, this will be a precedent for nucelopaths the world over, and they will all follow suit, saying, "*après moi, le déluge!*" [1]

2. A similarly persuasive argument was made by Chris Busby in his study of Swedish plans for the burial of nuclear waste. The *Wikispooks* article on Busby's career summed up the problem this way:

> … Busby calculated that the sealed canisters would explode due to helium released by the decay of alpha emitters within the 100,000 year period required by the Swedish environmental court and indeed probably within 1000 years. This matter is still unresolved. He pointed out that the release of the waste would make the Baltic area uninhabitable since it equated to several thousand Chernobyl accidents worth of radioactivity." [2]

The makers of these nuke waste disposal dreams could always say that these criticisms were merely speculation, but then American plans for burial came to a grinding halt in February 2014 when the WIPP facility in New Mexico experienced an explosion that has shut it down indefinitely. At a recent public hearing in Ontario for plans to create an underground suppository there, Canadian regulators were heard to say that the failure at WIPP occurred because there was a "degraded safety culture." In a report in local media on the hearings, a critic of the proposal said, "WIPP was once said to be 'state of the art' and comparable to the OPG DGR [Ontario Power Generation Deep Geologic Repository], but since the incident, OPG has 'thrown WIPP under the bus.'" [3]

The Canadian nuclear industry's response was a bizarre defense because the high likelihood of a degraded safety culture over time is precisely the reason people oppose nuclear energy. The Canadian regulators' hubris is almost more troubling than the actual disaster at WIPP. Assuming they do have such a great safety culture in the present moment, there is no

guarantee it will stay this way 20, 100 or 10,000 years into the future. All it would take is a government keen on budget cuts and hostile to unbiased scientific research, but hey, that would never happen, would it? When in doubt, just repeat: no one knows what is going to happen.

> "Every time we build and operate a nuclear reactor, we do so with the implicit assumption that we shall forever be able to contain the radioactive poisons we create in the reactor. In doing so, we presume that we can predict the future for centuries and millennia to come, that we can isolate and protect nuclear reactors and nuclear waste from every single catastrophe that nature and man can inflict, including earthquakes, tsunamis, volcanic eruptions, asteroids, human error, terrorism and war. History has already shown us that such assumptions are indeed both foolish and futile."
>
> -Steve Starr [4]

Notes

[1] "J.P. Petit: Les déchets nucléaires, bombe à retardement planétaire (Partie 1), (Nuclear Waste: A Planetary Time Bomb)," *Sputnik France*, February 17, 2014, https://fr.sputniknews.com/societe/20140217022754764-jean-pierre-petit-les-dechets-nucleaires-bombe-a-retardement-planetaire-partie-1/.

[2] Chris Busby, *Chris Busby/Research on The Health Risks of Radiation*, https://wikispooks.com/wiki/Chris_Busby/Research_on_The_Health_Risks_of_Radiation.

[3] Troy Patterson, "Problems elsewhere raise questions about OPG's Kincardine DGR proposal," *Owen Sound Sun Times*, Canada, September 17, 2014, http://www.owensoundsuntimes.com/2014/09/10/problems-elsewhere-raise-questions-about-opgs-kincardine-dgr-proposal.

[4] Steven Starr, "Lessons from Fukushima and Chernobyl for US Public Health," *Physicians for Social Responsibility*, April, 2011, http://www.psr.org/assets/pdfs/fukushima-and-chernobyl.pdf.

17. The Post-Fukushima Nuclear Industry: A Case Study in Institutional Self-deception

"If I had been downright honest with myself, I would have seen very plainly in my heart that I did but half fancy being committed this way to so long a voyage, without once laying my eyes on the man who was to be the absolute dictator of it, so soon as the ship sailed out upon the open sea. But when a man suspects any wrong, it sometimes happens that if he be already involved in the matter, he insensibly strives to cover up his suspicions even from himself. And much this way it was with me. I said nothing, and tried to think nothing."
-Herman Melville
Moby Dick

At the June 2013 International Atomic Energy Agency (IAEA) Ministerial conference in St. Petersburg, Russia, Director General Yukiya Amano repeated the familiar platitudes about Fukushima that deflect and deny the heavy responsibility of the IAEA and the Japanese nuclear establishment for having failed to prevent the catastrophe—one that every anti-nuclear group in Japan had been warning about for years. In a report on the conference published by *The Hindu* [1], Mr. Amano refers to Fukushima as not a disaster, accident, or catastrophe, but as a "tragedy," a word that suggests it was caused by cruel gods rather than human failings. He went on to repeat the familiar trope about "lessons learned" and the effective steps taken to make nuclear power plants safer.

Such statements from the head of the global nuclear establishment are emblematic of what is argued below: in trying to sustain itself against mounting evidence that points to its unacceptable dangers and costs, the nuclear industry has resorted to deceit and self-deception. Psychological experiments have revealed that deceit is soon followed by self-deceit, all the better to make the deception more likely to succeed. This strategy may

be an evolved mechanism of the brain, and it may succeed in the short term, in terms of the reproductive success of an organism, but it can come at a high cost to individuals and groups over the long term. The vicious circle of deceit and self-deceit reaches a point at which the inconsistencies become absurd to outside observers.

It is notable that Mr. Amano made comments that mostly reflect the responsibility of the IAEA to promote nuclear power, but not the responsibility to guarantee safety. Many regulatory bodies have been captured by the industries they are supposed to oversee, but the IAEA doesn't even have to pretend that it operates at arm's length from industry. It is the founding mission of the IAEA to promote nuclear power, in addition to advancing safety. It is as if the U.S. Environmental Protection Agency could be proud of promoting British Petroleum and Union Carbide, or as if the Federal Aviation Administration spent much of its budget on convincing the public to use airplanes instead of trains and cars.

In July 2013, the Center for Glocal Studies hosted a talk by Robert Jacobs of the Hiroshima Peace Institute.

At the conference in St. Petersburg, Mr. Amano touted the fact that, unlike in the aftermath of the Chernobyl accident when nuclear expansion stopped, many countries are building their first nuclear power plants, in spite of the Fukushima "tragedy." He even suggested "growth could be much higher," and he claimed "nuclear power actually has a very good safety record" and is a "tried and tested technology." Mr. Amano added

that it has advantages over fossil fuels and renewable sources of power. There are uranium resources that can last for thousands of years in fast neutron reactors, he says, and nuclear provides a steady supply of electricity at stable prices with low greenhouse gas emissions. After finishing this advertisement, he got around to saying something about safety, admitting that it was the "number one challenge" for the nuclear industry.

This simple, easily digested message intended for mass consumption (not for the audience in the room) actually reveals much about the psychology of nuclear promotion. We could ask what scenario, if any, would prompt the IAEA to give up promotion of nuclear energy and lead the world toward alternatives. Before 2011, we might have thought that the answer was a triple meltdown and the barely averted evacuation of Tokyo. The 50-year, trillion-dollar cleanup (estimates vary wildly, but they have been in the hundreds of billions so far) should have been the final nail in the coffin. It was the nightmare scenario that we were promised could never happen.

What about something worse, but still of a higher probability than we would like to admit, such as the destruction of a spent fuel pool near a large metropolis? That event would require the evacuation of millions of people, if the authorities were brave enough to admit the necessity. Based on what happened during the Fukushima catastrophe, we can conclude that it's more likely the authorities would decide that the future cancer cases were preferable to the economic damage and the deaths caused by a panicked evacuation. The truth of the situation would be revealed in stages in the hope that the depopulation of the city could be done over several months. Nonetheless, you can bet that the director general of the IAEA, and every other representative of the nuclear industry, would be feeding the media with statements about how lessons have been learned and nuclear is still a feasible alternative to fossil fuels. The cup is always half full, regardless of what happens.

Future generations will be the ones to decide whether nuclear leaders were evil or simply misguided, but their predicament brings to mind some well-known fictional characters who found themselves ensnared by the "insane root that takes the reason prisoner" (*Macbeth* I.III.83). Once a person has committed to an errant path, evidence of mistakes will not be sought, and if they are found, they will be ignored and denied. The farther the person goes, the worse the self-deception gets. The situation might seem appalling to outside observers, but the traveler on the path will delude himself or put on a brave face.

In the television drama *Breaking Bad*, the mild-mannered chemistry

teacher Walter White falls for the temptation of supplementing his income by making methamphetamine to sell to the local kids. Step by step he is ensnared in ever greater sins that require ever more twisted rationalizations. At one point he lets a young woman die of a drug overdose because calling for an ambulance at that moment would jeopardize his criminal operation. That death impacts her father who is an air traffic controller. He goes back to work still distraught and distracted, and causes a mid-air collision of two passenger jets. Walter knows the father, and knows that he himself is responsible for the chain of events. Back at the high school where he works, he is cornered by the principal to say a few words to the assembly of students traumatized by the air disaster, and all he can say to the stunned crowd is a line eerily similar to what nuclear Pollyannas would say repeatedly about Fukushima just one year after this story was broadcast: "I guess, what I would want to say is to look on the bright side. First of all, nobody on the ground was killed." The whole speech is worth citing as an artistic depiction of what a person sounds like when speaking through layers of self-deception:

> … and an incident like this over a populated urban center—that right there—that's, that's just got to be some minor miracle. So… Plus neither plane was full. You know, the 737 was what? Maybe two thirds full, I believe, right, yes? Maybe even three quarters full? Well, at any rate, what you're left with, casualty-wise, is just the fiftieth worst air disaster—actually tied for fiftieth. There are, in truth, fifty-three crashes throughout history that are just as bad or worse. Tenerife? Has anybody heard of Tenerife? No? In 1977, two fully loaded 747s crashed into each other on Tenerife. Does anybody know how big a 747 is? I mean, it's way bigger than a 737. And we're talking about two of them. Nearly six hundred people died in Tenerife, but do any of you even remember it, at all? Any of you? I doubt it. You know why? Because people move on. They just move on. And we will too. We will move on and we will get past this because that is what human beings do. We survive. And, uh... and we survive and overcome. [2]

The actor (Bryan Cranston) effectively conveys Walter's tortured conscience leaking through in these perplexing rationalizations. To suppress his guilt, he focuses on the difference between two thirds full and three quarters full, and he chastises his audience for not knowing about a plane crash that happened fifteen years before they were born. The students and teachers in the scene, and the audience on the other side of the screen, get

that there is something gravely amiss with Mr. White. Yet in reality, when an industrial catastrophe occurs, leaders of that industry and its various overseers do much the same thing. They downplay, shrug and make similar optimistic pronouncements, and the world doesn't bat an eye.

The nuclear industry is at that point in the play where Macbeth declares, "It will have blood they say: blood will have blood" (III.IV.122), or "I am in blood stepp'd so far that I should wade no more. Returning were as tedious as go o'er" (III.IV.136-138). Nuclear industry promoters are not killers along the lines of these fictional villains. Day-to-day life in the nuclear industry must be as banal as in any other profession. But the effects of institutional deception with nuclear technology can be just as devastating as those of deliberate crimes. If the *Macbeth* analogy is unfair, let's just say they are in for a dime, in for a dollar. Or, as it goes in nuclear projects, in for $500 million, in for $10 billion.

Another analogy with real-world events, rather than with art, can be found in the studies of NASA's safety lapses in the space shuttle program. Robert Trivers (whose book inspired this chapter) described the situation in *The Folly of Fools: The Logic of Deceit and Self-Deception in Human Life*:

> Once the United States reached the moon, NASA was a $5 billion bureaucracy in need of employment. Its subsequent history, Feynman [investigator of the *Challenger* accident] argued, was dictated by the need to create employment, and this generated an artificial system for justifying space travel—a system that inevitably compromised safety. Put more generally, when an organization practices deception toward the larger society, this may induce self-deception within the organization, just as deception between individuals induces individual self-deception. [3]

The nuclear industry is in the same phase of its life cycle, and there is a certain irony in the fact that James Hanson, a former leading NASA climate scientist, is one of the main voices promoting the idea that nuclear expansion can save us from global warming. [4] Private investors are not interested. The public hates it and doesn't trust promises about safety. The argument that nuclear can prevent global warming just doesn't hold up to scrutiny. It couldn't possibly expand enough to make a difference. Nonetheless, the industry persists in its message because that is all it can do. It deceives and self-deceives because it is "a bureaucracy in need of employment."

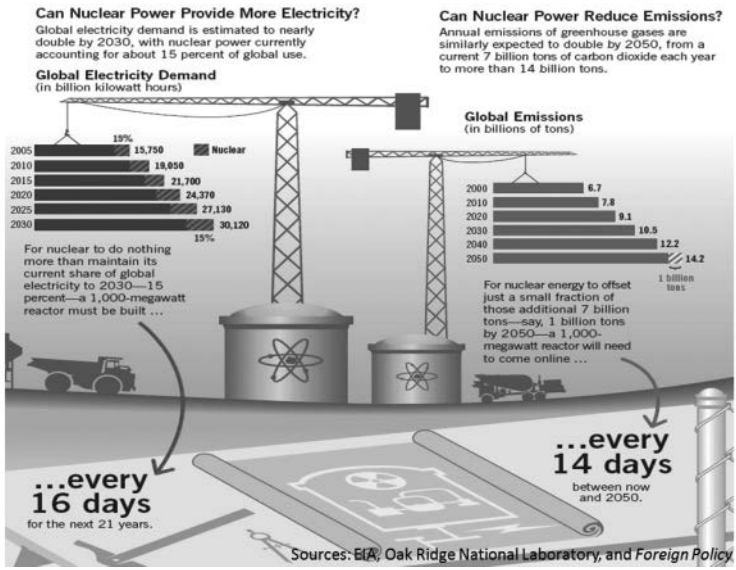
To explain the extent of this self-deception, in the following section let me count the ways nuclear apologists ignore the inconvenient truths that are stacked around them. In many cases, these issues are deliberately ignored, while in others it is simply a matter of ignorance. Nuclear professionals are atomized in their specialties, working on isolated tasks without a comprehensive view of the global situation. The staff at a French power plant, for example, may do their jobs very well, but they are unlikely to have had any education in the historical, political, environmental, and social aspects of nuclear technology. While they enthusiastically support nuclear power and accept what they tell each other about nuclear safety within their profession, they often have little awareness of how their operations are connected to the social and environmental impacts of uranium mines, waste disposal sites, and enrichment facilities. If they do get a glimpse of a disastrous problem once in a while, such as (to cite just one example) the uranium waste contamination of drinking water in Jharkhand, India, [5] they prefer to look away. Although there are hundreds of such problems around the world, they think each can be dismissed as an isolated, rare case of a failure to employ best practices. Proponents look to an *ideal* of how nuclear technology should be managed rather than at the *reality* of how it is managed.

1. The carbon footprint of nuclear

The advocates of nuclear energy promote it as being "carbon-free," but numerous scientific studies have been done to determine the amount of carbon energy that must be consumed at the front end and the back end of the nuclear cycle. The front end involves mining, refining, and enriching uranium, transporting it, and building and operating power plants. The back end involves cleaning up mine sites, decommissioning power plants, and transport and storage of nuclear waste. In 2008, Benjamin Sovacool examined 103 studies on this question for his report *Valuing the Greenhouse Gas Emissions from Nuclear Power: A Critical Survey*. In the conclusion, he wrote:

> Rather than detail the complexity and variation inherent in the greenhouse gas emissions associated with the nuclear lifecycle, most studies obscure it; especially those motivated on both sides of the nuclear debate attempting to make nuclear energy look cleaner or dirtier than it really is… the mean value of emissions over the course

of the lifetime of a nuclear reactor (reported from qualified studies) is 66 g CO2e/kWh… Thus, nuclear energy is in no way "carbon free" or "emissions free," even though it is much better (from purely a carbon-equivalent emissions standpoint) than coal, oil, and natural gas electricity generators, but worse than renewable and small scale distributed generators… lifecycle studies of greenhouse gas emissions associated with the nuclear fuel cycle need to become more accurate, transparent, accountable, and comprehensive… No identifiable industry standard provides guidance for utilities and companies operating nuclear facilities concerning how to report their carbon-equivalent emissions. [6]



Sovacool, and many others who discuss this question, tend to not mention the one variable that is the most damning for nuclear power. The energy and financial costs of the nuclear waste problem extend so far into the future that it might as well be considered infinite. We must conclude that the cost is enormous but unknowable, and, beyond being a financial consideration, it also involves questions about the technological competence of future generations, the health impacts that will fall on them, and the morality of leaving this mess for people who probably won't be enjoying the comforts some of us have in the 21st century. No one knows how problematic the back end will be, nor can anyone know the consequences of nuclear disasters yet to come.

2. Dwindling uranium supplies

While many new reactors are being planned and the IAEA sees nuclear as an essential way to avert global warming, no one seems to be considering questions about fuel supply. Each country is rushing headlong with its own plans, in the absence of a global plan to share the limited resource. Michael Dittmar, of the Institute of Particle Physics, wrote of this question in his study:

> … we predict that uranium mine production will decline to at most 54 ± 5 ktons by 2025 and, with the decline steepening, to at most 41 ± 5 ktons around 2030. This amount will not be sufficient to fuel the existing and planned nuclear power plants during the next 10-20 years. In fact, we find that it will be difficult to avoid supply shortages even under a slow 1%/year worldwide nuclear energy phase-out scenario up to 2025. We thus suggest that a worldwide nuclear energy phase-out is in order. [7]

3. The failed fuel cycle

Nuclear proponents have their own studies of global supply, and they are of course more optimistic, but the uncertainty in the scientific studies underlines the fact that the nuclear industry wants governments to finance a massive expansion of nuclear power when nothing definitive can be known about the future supply of uranium.

In addition, they claim that reprocessed fuel and fast breeder reactors could provide an almost infinite supply of energy from nuclear waste and discarded nuclear weapons, but there is a lot of evidence (always ignored by nuclear advocates) that this dream hasn't panned out and it never will. The technology is dangerous and expensive. The American government got out of it in the 1970s, perhaps because of a fast breeder accident that came close to taking out Detroit [8], and also because of the stocks of plutonium that accumulate and pose a weapons proliferation risk.

The Japanese have been trying for decades to create a closed nuclear fuel cycle, but the Monju fast breeder reactor worked for only a few minutes before it went critical in 1994. A sodium coolant leak in 1995 rendered it inoperable, and this was followed, as is the norm with many operators, by cover-ups and falsified reports, then by more problems with a restart in 2010. The project is now effectively over. The reprocessing facility in

Rokkasho is another boondoggle. The main reason it can't be closed down now is because promises were made to the prefecture where it is located. The fuel was to be reprocessed and magically made to disappear as it was "burned up" in reactors around Japan, but all nuclear plants in Japan were shut down after Fukushima, and many of them may never operate again. To now admit that the project failed would be to tell the people of Aomori prefecture that they are stuck with the nuclear waste that is on the site.

There is a similarly stalled project in the U.S. regarding a fuel reprocessing facility that is supposed to extract plutonium from warheads and convert it to MOX (mixed oxide) fuel. The facility under construction in South Carolina is now far over budget (up from $4.9 billion to $7.7 billion) and plagued by design problems. There is some doubt about whether there will be a market for the final product at prices that make the expense worthwhile. A report by Matthew Wald in *The New York Times* notes that the Obama administration budget request now says the idea of making reactor fuel may be unaffordable. [9] Wald quotes Edwin Lyman of the Union of Concerned Scientists: "Just about everything is going wrong." His group opposes the plant because it disagrees with claims that this technology "burns up" warhead plutonium. Instead, it adds to the world a material that can be used to make dirty bombs, or it can be purified to make nuclear bombs. Wald reports that the massive increase in the projected capital cost of the plant, and the overall cost of the program, are what caught the attention of budget planners. An executive at Areva, the French company that is in the partnership building the factory, noted the lack of parts manufacturers and skilled workers. There has been no new nuclear plant construction in the US for thirty years. Unfortunately, as usual, it is the cost, not the concerns about environmental impacts, that gets the attention of legislators who have called for the termination of this program.

4. Financing

In a perverse way, the Fukushima catastrophe was a good thing for the nuclear industry because it put nuclear energy back on the front page and provoked ham-handed propaganda efforts like the film *Pandora's Promise*. The PR machine has worked overtime since March 2011, planting editorials, holding international conferences, and getting employees to troll the comments on media websites. This appeal to the public through the mass media is necessary because the expansion of nuclear is now mostly a political issue and PR battle because the public is being asked to pay for it. Private financial capital has disappeared, and no insurance company will

cover the risk of accidents. Daniel Eggers, a utilities analyst with Credit Suisse was quoted in a Bloomberg report saying, "In a competitive market, you can't even come close to making the math work on building new nuclear plants. Natural gas is too cheap, demand is too flat, and the upfront costs are way too high." [10] As was the case with NASA during the space shuttle program, when the agency had to convince taxpayers that low-gravity experiments with corn were of urgent importance, the IAEA can only maintain its reflexive emphasis on promotion and job preservation, paying lip service to safety, but discounting any evidence that gets in the way of the primary objective of self-preservation and expansion.

5. Accidents yet to happen

A study published in 2012 in *Atmospheric Chemistry and Physics* looked at the record of nuclear accidents, counting only the famous ones like Chernobyl and Fukushima, and concluded from the record that future accidents are much more likely than they were originally assumed to be. [11] For reasons left unclear, some accidents were excluded from the report, such as the 1959 partial meltdowns at Rocketdyne, near Los Angeles, in which a hundred times the radiation of Three Mile Island was released [12], and the Church Rock mine disaster in 1979. [13] A study by the Max Planck Society had this in its summary:

> Catastrophic nuclear accidents such as the core meltdowns in Chernobyl and Fukushima are more likely to happen than previously assumed. Based on the operating hours of all civil nuclear reactors and the number of nuclear meltdowns that have occurred, scientists at the Max Planck Institute for Chemistry in Mainz have calculated that such events may occur once every 10 to 20 years (based on the current number of reactors)–**some 200 times more often than estimated in the past** [emphasis added]… Jos Lelieveld, one of the authors of the study, said, "Not only do we need an in-depth and public analysis of the actual risks of nuclear accidents. In light of our findings I believe an internationally coordinated phasing out of nuclear energy should also be considered." [14]

These reports refrained from speculating on whether the nuclear industry knows this risk but just accepts it as the cost of doing business, as is common in other industries. Mitsubishi Heavy Industries, for example, makes outsized cargo ships that, we now know, can break up in rough

seas. There's always the chance that one will break in the middle and leave thousands of shipping containers slowly sinking in the sea. The *MOL Comfort* broke in two in the Indian Ocean in June 2013, an accident which was unprecedented for a ship of this scale, with half of the ship sinking quickly while the other half was towed away, eventually catching fire and also sinking before it reached safe harbor. [15] What looked like a colossal engineering failure can also be viewed as a well-calculated risk worth taking. They could make smaller ships, but over a long period of time, the shipping industry will be more profitable if it uses these enormous ships, even if the cost of the occasional sinking is accounted for, and the environmental damage is ignored as what economists call "an externality."

It seems that the nuclear industry is running on the same principle. Soon after the Fukushima catastrophe, Hans Blix, former director general of the IAEA, said, "Fukushima is a bump in the road and will also lead to a further strengthening of the safety of nuclear power." [16] In 1986, shortly after the Chernobyl catastrophe, Blix's underling at the IEAE, head of nuclear safety Morris Rosen, said, "Even if an accident of this kind occurred every year, I would consider nuclear power an attractive source of energy." [17]

6. The legacy

The most compelling evidence of the failed promise of nuclear energy is the numerous *hibakusha* communities (not all of them victims of weapons programs—the term includes all victims of industrial activities related to uranium extraction) and nuclear waste sites around the world that have become intractable, nation-bankrupting, looming environmental catastrophes. If we used to worry about a far-off day when post-industrial societies would confront nuclear waste without the resources and knowledge to handle it, we can now relax. That day is already here. Private and public debts are at record heights, and state governments of a declining imperial power can't even afford to fix schools or potholes on city streets. Some American states have even desperately proposed a tax on hybrid vehicles [18] because of all the gasoline tax their owners don't pay. If it is so difficult to raise funds for basic social services and infrastructure repairs, nuclear waste cleanup is not likely to rank as a priority or be considered affordable.

If the IAEA could honestly face up to the problem, it might advocate (it has no enforcement powers) for a moratorium on new nuclear construction until proper action were taken on the legacy of nuclear waste. But of

course, this would mean the end of nuclear power because there would be no money left over, and no public will to create more nuclear waste. The billions or trillions of dollars necessary to finish the job would make the true cost of this technology clear to the world, so the nuclear industry must suppress the seriousness of the problem. It brushes the problem aside with bland promises that solutions are at hand. But we have to wonder. If it were that simple, the problem would have been solved by now.

A proper discussion of the nuclear waste legacy would be another book unto itself. If such a work were to be compiled, it would include these sites:

- The Hanford site, Washington State. After it was declared a Superfund site in 1989, work continued for 23 years until whistleblowers revealed in 2012 that serious problems were ignored before concrete was poured on the new treatment facility, which could lead to a "dangerous risk of hydrogen build up which could trigger an explosion of radioactive materials." [19] Some have questioned whether remediation is possible at all.
- Manhattan Project waste dumps in St. Louis, the Niagara Region of New York State and numerous other locales across America. Seventy years after the dawn of the nuclear age, the *Washington Post* reported that cleaning up what is still left of the Manhattan Project wastes will cost more than what was spent (in 21st century equivalent dollars) to build the atomic weapons of the 1940s. [20] *USA Today* gave extensive coverage to this issue in a series that ran in 2001. [21]
- Decommissioning projects required at numerous nuclear fuel facilities, such as in Paducah, Kentucky. U.S. taxpayers are on the hook for this debacle after USEC Inc. made its profits leasing the government-owned site, then walked away from it in June 2013. [22]
- A few billion dollars in decommissioning costs for each of the hundreds of nuclear power plants worldwide that are reaching the end of their 40-60 year lifespan. Cost estimates vary wildly from hundreds of millions to a few billion dollars for each. It is doubtful in many cases that the money set aside for decommissioning will be sufficient.
- Sellafield, U.K, location of a former weapons facility and fuel plant. $120 billion is now estimated for the cleanup. Private contractors failed and the government might have to take over the job that a government was previously thought to be not capable of. [23]
- La Hague, France, location of another former weapons facility and fuel plant. About $4 billion is estimated for decommissioning, but work is not

going well. There is a curious discrepancy in cost estimates compared with the above-mentioned U.K. facility. *L'Autorité de sûreté nucléaire* recently ordered La Hague to cease some operations until several "serious gaps" in security are addressed. [24]

- Radioactive and chemical pollution left at uranium mine sites. It is often said that all of America's nuclear waste could fit onto a football field, but this overlooks the fact that for each kilogram on the field, there are hundreds more of mine tailings, processing chemicals, radon gas, and depleted uranium used to the make conventional weapons. Besides, that football field full of waste is, gram for gram, much more toxic than any other kind of industrial waste product, and energy has to be spent cooling it and containing it for long periods of time. Furthermore, it is not all contained on one football field. It is scattered in thousands of locations. Pointing to its small size is a dishonest distraction created by people who know it is an apples-to-oranges comparison.
- Depleted uranium, used in armor-piercing weapons, vaporized and scattered over Iraq during two U.S. invasions. This use of uranium is unrelated to electricity production, but using it wouldn't be so easy if the material were not conveniently available as a waste product of producing uranium fuel. According to a report in the *Guardian*, a senior UN humanitarian official in Iraq wrote, "The US government sought to prevent WHO [the World Health Organization] from surveying areas in southern Iraq where depleted uranium had been used and caused serious health and environmental dangers." The article also states that a WHO report, conducted jointly with the Iraqi government, contains "damning evidence" of a stunning rise in birth defects where depleted uranium and toxic metals were used by invading American and British forces. [25][26]
- The ongoing cost of decommissioning the wreckage of Chernobyl and Fukushima. All of the nuclear waste legacies listed here are associated with cost-estimates of a few billion dollars here, a few billion dollars there, but with deadlines that span generations, and sites that will be toxic for thousands of years, it is impossible to put a price on the cleanup costs of these two famous meltdowns. The word cleanup is relative and, of course, a misnomer. Mitigation is the appropriate term that should be used, and the standards used are relative, depending on what we decide we can spend. It would be naïve to think that people of the future are going to have the will or the means to do everything possible to eliminate the toxic legacy of the nuclear age. Many poisoned lands will just be left as sacrifice zones.
- Numerous sites in China, India, the former Soviet Union, and Africa that

are less well-known than sites in the West. In prosperous nations with some degree of civic activism, the damages of nuclear technology were averted, acknowledged, or mitigated to some degree. The health and environmental damage around other sites is arguably worse than what is known about more famous locations in the West.

The Tokyo Electric Power Company (TEPCO) currently has a standing request to the new Japanese regulator, the Nuclear Regulation Authority (NRA), for approval to restart the Kashiwazaki reactor that was shut down in 2007 after it was damaged by an earthquake. [27] That damage occurred because there was a fault line under the reactor that, according to surveys done before construction, didn't exist. The decision to restart now comes down to whether the faults under Kashiwazaki will be classed as active within the last 400,000 years. This new NRA standard replaces the previous cut-off of 120,000 years. The question now is whether this scientific judgment will be influenced by financial and political pressure.

Unfortunately, this preoccupation with the distant past has led to the absurdity of both NRA and TEPCO forgetting that there was a damaging earthquake under Kashiwazaki in the early 21st century, not 400,000 years ago. Furthermore, they are repeating the arrogant mistake of NASA engineers who couldn't foresee the famous O-ring failure in the 1986 space shuttle *Challenger* disaster. O-ring wear was noted after previous space shuttle flights, but since the wear was only one third of the way through the width of the ring, NASA engineers optimistically concluded that this was proof that the O-rings had been designed with a "threefold safety factor" [28]. This mistaken assumption, which overlooked cold weather as a factor in the wear, was obvious only after the O-ring wore through completely on the *Challenger* flight, killing all of the astronauts on board. The same hubris seems to be underway at TEPCO—safety inspections on the Kashiwazaki reactors have been completed and the company is confident that they will survive the next earthquake simply because they survived the last earthquake. TEPCO engineers assume they know the maximum magnitude and peak ground acceleration of any future earthquake that will strike, which just happens to be less than the design limits of the reactors.

This optimism bias and self-deception is driven by the need to quickly produce a revenue stream. TEPCO is bankrupt, with no way to pay for the Fukushima Daiichi decommissioning and all the compensation owed, let alone its normal operations. The government also believes that "cheap" nuclear energy is necessary to restore Japan's positive balance of trade. For economists who focus on the country's demographics and other

problems, this is seen as an irrelevant issue. The TEPCO plan, endorsed by the Abe government and *Keidanren* (Japan Business Federation), is to use Kashiwazaki as a cash cow for the corporation and the nation. In other words, the plan is to risk a new meltdown catastrophe as a way to pay for the damage caused by the last one.

It is still possible that the NRA, trying hard to establish itself as a tough, independent regulator, will say that the seismic risks rule out any possibility of Kashiwazaki ever being started again. Yet the political and financial pressures will be enormous. If the NRA caves in, it will be safe to assume that this new and improved regulator has been captured just as surely as its predecessors. Already the NRA has indicated that nuclear restarts will soon be approved in other places, even though it says, apparently oblivious to the contradiction, that establishing a safety culture will "take a long time." [29]

TEPCO's dilemma should make one thing painfully obvious, though mainstream political ideology cannot acknowledge it: this is not a job for capitalism. TEPCO should be abolished, and all of its assets and obligations should be assumed by the state. Soviet historians speak of the Battle of Chernobyl because it was a war against technology that required national sacrifice. Japan and the international community should have long ago realized that the Battle of Fukushima cannot be fought, let alone won, by a bankrupt corporation hiring casual workers through layers of subcontractors. A massive national effort is called for, but no one in charge seems capable of recognizing the need.

If the NRA approves the restart of Kashiwazaki, even though it is now known to be on an active fault that nearly caused a devastating accident, it will be interesting to see how Yukiya Amano, himself a veteran of the Japanese nuclear establishment, will respond. If the IAEA were truly focused on safety, it would recognize that all of Japan is at risk of earthquakes that could exceed the design basis of existing nuclear plants. The quake damage at Fukushima Daiichi (not the tsunami damage) has still not been determined. The sensible thing for Mr. Amano to do would be to recommend that his native country save itself and abandon nuclear energy. But this won't happen. When the restarts of Kashiwazaki and other plants are announced, the IAEA will look away and, if it says anything at all, it will issue the same bland statements that were made about all of Japan's safety lapses prior to 2011: Improvements have been made, this time it will be different, Japan is in compliance with international standards, and the IAEA does not interfere with the energy policy decisions of member states. After all that has happened, this is the measure of how our system of global

governance assesses the urgency of the problem. By the absurd reasoning of institutional self-deception, the Chernobyl and Fukushima "tragedies" provided wonderful opportunities to make improvements in nuclear safety, so why not have more?

Am I self-deceived? Perhaps I am, but the logic of self-deceit says I couldn't know. But I have no self-interest behind my arguments which would motivate me to deceive others. If anything, my life would be harder in a less energy-intensive world. As Bill McKibben wrote, "...tackling climate change has been like trying to build a movement against yourself." [30] The pro-nuclear argument claims that I've got it all wrong, as they think nuclear expansion could somehow prevent climate change from happening. But climate change will continue regardless of help from nuclear, and regardless of the causes, so the pro-nuclear argument amounts to saying that when people of the future are faced with rising sea levels, weather extremes and social disorder, they will curse us for not having left them more nuclear waste to add to the troubles they have living with the consequences of global warming. I'm ready to bet the opposite: that the people of the future will want to inherit the smallest possible legacy of nuclear waste.

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18. The Procrastinating Angels of Our Nature, or How Violence Has Been Transformed and Postponed: A critique of Steven Pinker's *The Better Angels of Our Nature: Why Violence Has Declined*

People in the country, people on the land,
Some of them so sick they can hardly stand.
Everybody would move away if they could.
It's hard to believe but it's all good.
- Bob Dylan, *It's all Good* (2009)

Since the publication of *The Language Instinct* in 1994, Steven Pinker has gained recognition as one of the preeminent intellectuals of our times. *Prospect* magazine placed him at number three in its 2013 World Thinkers poll. [1] He has impressed readers by the breadth of his knowledge and his ability to write articulately and persuasively about language, psychology, and biology, as well as in many fields in the humanities. In *The Better Angels of Our Nature: Why Violence Has Declined*, [2] Pinker analyzed an impressive volume of historical data in order to present a persuasive argument. The book received largely positive reviews in the mainstream press when it was released in 2011, as most reviewers decided he made a convincing case that demolishes the popular, pessimistic notion that we live in an age of increasing violence, and that things are generally going from bad to worse. Pinker's thesis has received so much attention that it has become somewhat of an established truism.

Those who wrote negative reviews found that the book glossed over the sins of colonialism and hegemony, and exaggerated the violence of pre-industrial times. One such review by Edward S. Herman and David Peterson described it as "an outstanding snow job," with a message "well

geared to the demands and drift of Western imperialism." [3]

I might have found Pinker's thesis more convincing if I hadn't been personally jolted out of my complacency and sensitized to what it is like to be the collateral damage of the modernity that Pinker celebrates. I read the book while living two hundred kilometers downwind of the Fukushima Daiichi disaster, and my perspective made me think that Pinker ignored much suffering in the modern world by focusing only on what is called direct violence; essentially war and crime statistics.

The sharp increase in the exploitation of energy resources that came with the Industrial Revolution was not considered by Pinker to be a factor in the decline of war and crime, or a possible cause of increases in other forms of suffering. I argue below that the exploitation of energy sources is a key factor that Pinker failed to account for, both in the decline of the direct violence that he describes, and in the rise of structural violence that he fails to discuss; such things as economic inequality and ecological damage. In short, this book doesn't explore the possibility that modernity kills few but oppresses many, [4] that we have decreased direct violence in exchange for a greater degree of structural violence and problems that future generations will have to reckon with. Furthermore, after the publication of Pinker's book, other researchers took up the task of doing a deep analysis of the historical statistics on violence. In a paper published in 2015, the authors did a thorough statistical study, and concluded:

> We examine statistical pictures of violent conflicts over the last 2,000 years, finding techniques for dealing with incompleteness and unreliability of historical data… All the statistical pictures obtained are at variance with the prevailing claims about "long peace," namely that violence has been declining over time… To conclude our paper, one may perhaps produce a convincing theory about better, more peaceful days ahead, but this cannot be stated on the basis of statistical analysis—this is not what the data allows us to say. Not very good news, we have to admit. [5]

The term structural violence, developed by Johan Galtung in 1969, [6] goes back further to the earliest days of Marxist theory. Engels wrote that the relations between the bourgeoisie and the working poor were described by English working men as a slow and indirect "social murder." [7] The term referred also to the destruction of "nature" (what we would now call the ecosystem) because capitalism exploits nature as it does human resources, and the violence against nature affects the people who sustain themselves

by it. More recently, the NASA scientist James Hansen has applied the language of genocide to the ecological crisis by calling the climate-change cover-up a "crime against humanity." [8]

The negative reviews blasted Pinker for being wrong about violence, but didn't concede that his analysis may be valid within its limited scope, to the extent that statistics on violence in the distant past or in distant outposts of the modern world can be considered reliable at all. What really seemed to bother them was the neglect of the broader definition of suffering mentioned above; such familiars of the modern age as ecological destruction, labor abuses, overpopulation, superpower proxy wars, and so on. Pinker should, ironically, welcome this criticism because it supports his point that society has become more vigilant about questioning all assumptions about its ethical values. Optimistic findings about the decline of violence will not go un-scrutinized!

One cannot fault Pinker for a lack of thoroughness in his research, nor do I argue that the book is not a valuable contribution to peace studies. It's a bit much to say he wrote his book as a servant to the demands of Western imperialism. We can assume that he wrote this book with good intentions, hoping to create an understanding of ways that violence can be reduced. In particular, his descriptions of the common cruelties of the past should be read by anyone who might romanticize the past or take for granted the many ways we no longer tolerate the sorts of violence that used to be accepted as inevitable aspects of the human condition.

Nonetheless, it is somewhat perplexing that he tries to do this while remaining detached or neutral about the issues of the day that inflame public opinion—such matters as the corrupting influence of private enterprise on politics, US foreign policy, or the ecological crisis. People who are concerned about such things are dismissed as pessimists who can't see how good everything is getting. It is good for a scientist to be impartial, but the problem is that we all know that this is a fallacy. Books such as this are shaped by personal biases, so they might as well be openly declared. Remaining aloof on contemporary conflicts and controversies invites the suspicion that the author might be "catering to the demands of Western imperialism," intentionally or not.

An example of Pinker's cautious neutrality can be seen in what he said about the Israeli-Palestinian conflict at *The Economist*'s "World in 2013 Festival." He contends that an excess, not a lack, of morality is sometimes the problem. Most acts of murder, and most wars and atrocities, are committed to defend moral principles, not to obtain resources or security. When speaking of the specific example of the Middle East, he said:

> We often wonder why the Israelis and Palestinians can't just do what is obvious to the rest of the world as the solution to the problem in the Middle East—a two-state solution, perhaps with some financial compensation to prop up a nascent Palestinian state… the reason that doesn't work is that it violates some commitments to sacred values that extremists on both sides hold. The more you point out the financial and everyday advantages of living in peace, the more they feel it's compromising these values that may not be compromised if you're going to be a moral person. [9]

There is some obvious truth in this argument, but it conveniently ignores the fact that in conflict resolution more is involved than merely addressing the excess of moralizing on both sides. Conflicts of this scale don't conclude with pat statements saying it takes two to make a quarrel or blame must be shared all around. Instead, after conflicts are resolved, historians and international tribunals try, ideally, to identify perpetrators, acts of aggression and violations of international law. Atrocities cannot be excused just by saying both sides were merely trapped in a standoff rooted in irrational commitments to moral principles.

Pinker could look to a colleague that he admires as one of the founders of evolutionary psychology, John Trivers, who published a book on a similar theme concurrently with *The Better Angels*. Trivers managed to blend a study of the psychology of self-deception with a biting critique of the false historical narratives that have been constructed by modern imperial powers. [10] The result is that the reader is left with no suspicion that the author had a hidden political agenda because the author's views were laid bare, without detracting from the discussion of the science of self-deception. The downside of this approach is that Trivers' decision not to conceal his views meant that even the *New York Times*' positive review found it "too shrill." [11] His book didn't receive as much attention or sell as well as popular non-fiction that strives to avoid controversy.

Pinker sets out to prove that the decline in violence is real by going over an impressive amount of historical data, then testing his interpretations for falsifiability. He investigates all possible causes of the decline of violence and eliminates any reason that can't be backed up by the data or logic. Because he is an evolutionary psychologist, one might expect him to make the case for genetic change or selective pressure on societies that became less violent. It could be that certain cultural and natural environments had a domesticating effect, whereby more aggressive

individuals reproduced less successfully. Perhaps he feared the backlash from critics who would wince at any hint of biological determinism, so he was careful to steer clear of explanations that resorted to inter-group biological differences. He concluded there was insufficient evidence of a biological change that made humans less violent. He concludes that all of humanity has the same potential for rapid transformation in its values and behavior, but not its genetic constitution. [12]

Pinker dismisses rising affluence as a cause of declining violence, then by the end of the book concludes that there were primarily just two things that brought about the decline. One was The Enlightenment, the period when 18th-century European and American philosophers used reason to argue against the cruelty of entrenched religion, hereditary privilege, and customary beliefs about such things as the treatment of women, children, and minorities. Pinker finds that the other cause of the decline of violence was technology, in particular communication and transportation, which spread the new values. He claims that greater literacy and travel led to a rapid expansion of the boundaries of empathy, as increasing numbers of people were able gain new levels of compassion toward people outside of their very limited social worlds.

Did exploitation of energy sources reduce some types of violence and increase others?

It seems obvious that energy enabled these technologies, which in turn had a pacifying effect on society, but Pinker never addresses energy exploitation as an ultimate cause. He considers many possible causes and eliminates the ones that don't stand up. He says democracy could have been a cause of the decline of violence, but he notes that democratic reform was often the goal, not the cause, of struggles to expand rights and moral considerations of the neglected segments of society. Prosperity is also dismissed as a cause because it has a "diffuse influence" [13] on society. According to Pinker's view, surplus wealth could be spent on many things, so it wouldn't necessarily lead to prosperous societies spending their surplus on, for example, universal education and health care rather than on palaces. I would suggest that the outcome might inevitably lead to prosperity being shared more widely—precisely because I've read Pinker's previous books on human nature (*The Blank Slate, How the Mind Works*). He convinced me that while our species is hard-wired to compete, it has also evolved toward greater levels of altruism and cooperation. Energy and technology must have made the decline of violence inevitable rather than an outcome of

choosing to follow the path of reason.

Perhaps Pinker disregarded energy in this book perhaps because he presumed its effects were too obvious to need stating. He frequently mentions technology as one of the causes of the decline of violence, but doesn't pursue the idea very far. Thus the negative impacts of technology are not explored. For example, rare earth minerals, as vital components of cell phones, have enabled the modern expansion of empathy happening through information technology, but the devastating damage of rare earth mining is not discussed. The energy industry has well-known ecological impacts. Unfortunately, these downsides are not considered as a countervailing influences on the positive trend in the incidence of war and crime.

Although Pinker paid no attention to energy in *The Better Angels of Our Nature*, he seems to be aware of its importance. Two years after its publication he is now supporting the nuclear industry on his twitter account. He has publicized screenings of the nuclear industry's film *Pandora's Promise*, [14] and tweeted supportively about a *New York Times* editorial [15] entitled "Fear vs. Radiation: The Mismatch." Lamenting the damage done not by radiation but by hysterical fear of radiation, he commented on this editorial, "A textbook case of the psychology of fear." [16]

It is not clear why Pinker would so readily discount the legitimate concerns the public has about the poisons that have spilled out of Fukushima Daiichi, and about nuclear energy in general. Such editorials don't exemplify the expanding circle of empathy that led to the decline of violence. Work by numerous scientists and reputable organizations has refuted the views expressed in Pandora's Promise. In addition, robust moral and scientific arguments have been made against the views expressed in what has become a genre in nuclear discourse—the editorial noting that no one died because of the accident at Fukushima (which is, in fact, not verifiable) and that the ignorant masses were suffering from radiophobia—the disease of the statistically illiterate who simply refuse to accept that the global nuclear industry has a firm, benevolent hand on the situation. [17] Tom Burke, writing in *The Ecologist*, summed up the widespread distaste for this attitude toward the people affected by the nuclear disaster: "This cynical focusing of public attention on the absence of immediate deaths from Fukushima was a contemptible effort to divert attention from its real consequences." [18]

Pinker seems to have lent his support to the pro-nuclear cause without his usual thorough investigation of the evidence on both sides of the issue. When he was dealing with apparently crucial questions, such as the

possible existence of genes for high intelligence in Ashkenazi Jews, Pinker delved into the matter with a 3,400-word analysis [19] of the methodology and reasoning underlying the research paper *Natural History of Ashkenazi Intelligence*.[20] He presented a detailed analysis of the seven hypotheses of this research paper. About this research he asked, "How good is the evidence for this audacious hypothesis? And what, if any, are the political and moral implications?" However, there is no indication in his public statements that he has done a serious analysis of the claims made by nuclear energy proponents. In fact, he seems to be coyly avoiding getting caught in the crossfire of the nuclear energy controversy.

About the question of Ashkenazi intelligence he concludes that the researchers...

> … provided prima facie evidence for each of the hypotheses making up their theory. But all the hypotheses would have to be true for the theory as a whole to be true—and much of the evidence is circumstantial, and the pivotal hypothesis is the one for which they have the least evidence. Yet that hypothesis is also the most easily falsifiable. By that criterion, the CH&H story meets the standards of a good scientific theory, though it is tentative and could turn out to be mistaken.

If Pinker had applied the same rigor to the important questions about nuclear energy, he might have discovered that the pro-nuclear argument is "tentative and could turn out to be mistaken." The World Health Organization studies on radiation (the basis of the argument in the *New York Times* editorial), have all been distorted by the interests of the nuclear lobby. The IAEA, the UN agency with a mandate to promote nuclear energy, has the authority to overrule any WHO research on questions related to nuclear energy. Pinker would surely concede the point that the UN is compromised by the veto power of the five Security Council members who often put their interests (two of which are nuclear energy and nuclear weapons) above global welfare. He described the UN as the reason we shouldn't hope a world government would fix our problems. "The Security Council," he wrote, "is hamstrung by the veto power that the great powers insisted on before ceding it any authority, and the General Assembly is more of a soapbox for despots than a parliament of the world's people." [21]

I can find no publications in the academic or popular press in which Pinker examines the controversies surrounding research on radiation and the feasibility of nuclear energy as a solution to global warming. The Chernobyl

accident is never mentioned in *The Better Angels*, and Fukushima happened six months before the book was published—time enough to have inserted a few extra sentences to the one paragraph in the book about nuclear energy. Alternatively, the disaster might have caused Pinker to consider deleting the paragraph altogether. Nuclear energy is not an essential topic in his book, but since Pinker made brief mention of the Three Mile Island accident, and argued that the irrational fear it generated needlessly drove America away from nuclear energy and worsened global warming, it would seem germane to discuss these subsequent tragedies. Since he chose to broach this topic, he owes readers a more thorough discussion of subsequent nuclear disasters and a more vigorous defense of his conclusion that Three Mile Island "probably had no effect on cancer rates" and it "halted the development of nuclear power in the United States and thus will contribute to global warming from the burning of fossil fuels for the foreseeable future." [22]

The *Better Angels* includes hundreds of references, but none for this claim about cancer rates. It seems more like an opinion the author picked up from casual conversation with nuclear engineers, and it's an unusual lapse from a scholar who is usually meticulous about referencing. The one note in the paragraph refers to the work of John Mueller, a researcher specializing in risk perception, who is also known for his counter-factual history of nuclear weapons, in which he claims that they had no meaningful impact on the course of history. [23]

In previous books, Pinker has had a keen eye for ways that the social sciences were led astray by prevailing, fashionable theories. Confirmation biases have often led researchers to design studies that produce the desired conclusions. One example he has discussed is the debunking of Margaret Mead's work on adolescence in Samoa. [24] Contrary to her conclusions, it turned out that teenagers there really weren't that different from teenagers in the West. Years later, the research subjects admitted they thought her obsession with sex was strange, so they started to make up stories to please her. So that's fine. Very amusing. In this case, whether Mead was right or wrong, we can say with more certainty that the mistake probably had no effect on cancer rates. It's always fun to poke fun at academics getting things wrong when they fail to see the simple truths that common folk know too well. However, it is worth asking what motivates Pinker to repeatedly reveal such foibles only in the social sciences, but not in other disciplines that he looks on favorably.

When it comes to questions about nuclear energy, the stakes are high, involving effects on the environment and human health for thousands of years into the future. If there were self-reinforcing beliefs among a few

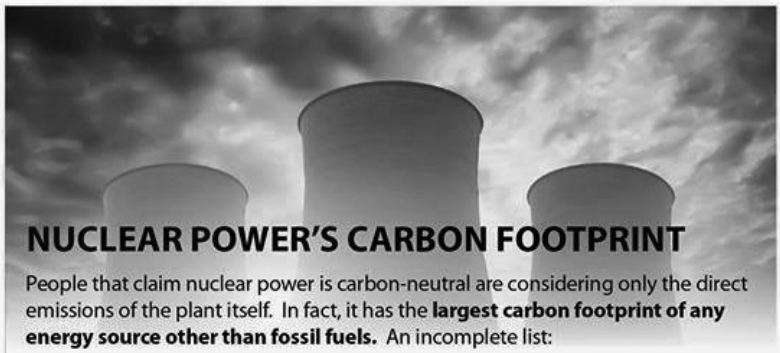
hundred anthropologists, certainly there could be biases in the health studies sponsored over six decades by the trillion-dollar military-industrial complex. This problem has been revealed and studied in depth by many qualified scientists working outside the industry (listed below).

Witnesses who lived through Three Mile Island at close range saw their pets and farm animals suffer sudden ailments, and the people themselves reported their rashes, fatigue, and digestive disorders to independent researchers such as Aileen Mioko Smith. [25] Stephen Wing, an epidemiologist, did research on cancer rates and came to different conclusions than did government-sanctioned research. [26] He argued that the official findings depended on faulty logic because they simply ignored evidence that didn't fit the standard model. Wing argued that the old model had to be reassessed because his research showed the "collision between evidence and assumptions."

Nonetheless, even the official view states that 13 million curies of radioactive gasses were released in the accident, and based on what is known about the effect of radiation on living tissue, that is a lot of radiation. It is actually implausible that this had no impact on the health of organisms in the vicinity. Saying the accident "probably had no effect on cancer rates" is a matter of optimistic interpretation, not fact. Almost no individual case of cancer can ever be attributed to a definite cause, so anyone can believe whatever he wants about the effects of a nuclear accident, or smoking tobacco, or virtually any toxin for that matter.

The same "probably-no-effects" claim could be said of almost all carcinogens. Considered one by one for their effects on cancer rates, they would each have no clear effect, as it would be lost in the effects of all the other substances, as well as in confounding factors such as genetics and the mobility of the population. All these causes are responsible, and so none of them are responsible, but this does not absolve the people who are responsible for the release of known toxins into the environment. Nor does it resolve the question of how a society should deal with them. Unfortunately, Pinker fails to discuss any of the complexities of the nuclear energy debate, nor does he acknowledge, in his usual even-handed and impartial fashion, that a large body of scientific studies has arrived at conflicting conclusions about the health impacts of nuclear energy and nuclear accidents.

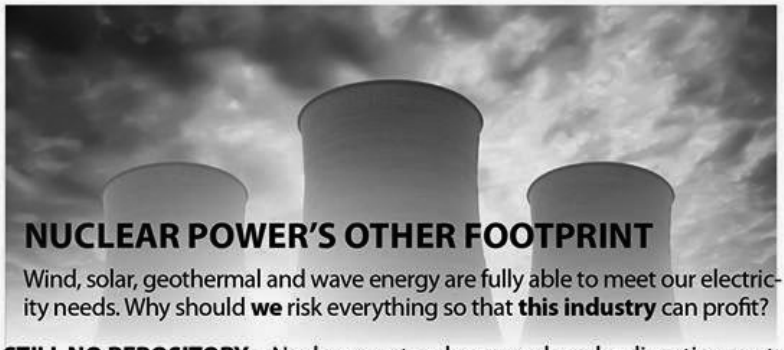
In addition, it is spurious to claim that the fear of nuclear energy after Three Mile Island worsened global warming. Such counter-factual arguments can be refuted by positing different counter-factuals, which are also, admittedly, not worthy of serious consideration. When we decide to



NUCLEAR POWER'S CARBON FOOTPRINT

People that claim nuclear power is carbon-neutral are considering only the direct emissions of the plant itself. In fact, it has the **largest carbon footprint of any energy source other than fossil fuels.** An incomplete list:

1. **MINING** - Uranium (or thorium)
2. **MILLING** - Transportation to millworks, converting ore to "yellowcake" uranium
3. **CONVERSION** - Construction of the uranium (U) conversion facility, transportation of "yellowcake", conversion to UF6
4. **ENRICHMENT** - Construction of the U enrichment facility and the cylinders used to transport UF6, transportation of UF6 to the enrichment facility, enrichment. The Paducah, KY plant uses 3,040 megawatts of coal energy at peak power.
5. **FUEL PELLETS** - Formation & transportation of uranium fuel pellets
6. **NUCLEAR POWER PLANT CONSTRUCTION (NPP)** - Takes years and uses heavy construction equipment. Steel and concrete production are carbon-intensive.
7. **SUPPORTING INFRASTRUCTURE NPPs** - Construction of roads, transmission lines, barge canals
8. **GENERATORS** - Heavy-duty diesel generators run the cooling system during routine maintenance, refueling, other normal shut downs, SCRAMs, and power outages
9. **WASTE STORAGE** - Building Radioactive Waste (radwaste) storage facilities and storage containers. Transportation of radwaste, sometimes across the country or the ocean.
10. **WASTE PROCESSING** - Building reprocessing plant, transportation of radwaste, reprocessing, building storage for the remaining radwaste
11. **WASTE INCINERATION** - Building radwaste incineration facilities, transporting the waste to the incineration facility, incineration
12. **WASTE VITRIFICATION** - Building vitrification plants, transporting waste to the plant, vitrifying the waste (involves heating the materials to very high temperatures)
13. **MONITORING OF RADIOACTIVE WASTE** - Carbon pollution generated by monitoring and guarding the radwaste for eternity
14. **DECOMISSIONING AND DECONTAMINATION** - NPPs, other reactors, enrichment facilities, and other support infrastructure
15. **ACCIDENTS** - Mitigation and clean-up efforts have a huge carbon footprint
16. **DAMAGED REACTORS AND ACCIDENTS** - Building sarcophagus structures, monitoring, securing and periodically re-entombing failed NPPs for eternity



NUCLEAR POWER'S OTHER FOOTPRINT

Wind, solar, geothermal and wave energy are fully able to meet our electricity needs. Why should **we** risk everything so that **this industry** can profit?

STILL NO REPOSITORY - Nuclear reactors have produced radioactive waste since the 1940s, yet we still have no permanent repository

MOBILE CHERNOBYL - Transporting nuclear waste to a central repository risks contamination along highways and rail lines, by accident or terrorists

MAJOR DISASTER EVERY 20 YEARS - Latest calculations show that the world will average one major disaster every 20 years

NO ENVIRONMENTAL JUSTICE ON THE REZ - Uranium mining on the Navajo Reservation is an environmental justice disaster

NUCLEAR WEAPONS PROLIFERATION -You can't make a modern nuclear weapon without a nuclear reactor

FINANCIAL RISK IS OURS - Because of huge taxpayer subsidies and loan guarantees, the industry does not pay the full price for nuclear plant projects that they do not complete. In addition, the Price-Anderson Act caps damages that the industry must pay after a disaster. U.S. taxpayers pay the rest.

UNINHABITABLE LAND - We risk the loss of valuable real estate. For example, if a disaster happened at New York's Indian Point, the estimated economic loss would be in the hundreds of billions to trillions of dollars. Beyond the cash value, the Hudson Valley, like so many other places near NPPs, is irreplaceable.

HEALTH RISK IS OURS - Google "Chernobyl children" and see the horrible results of nuclear power disasters . Sixty percent of Fukushima children have abnormal thyroids; in a few years thyroid cancers will present. The Japanese government is already hiding their medical records.

EXTREME WEATHER CAN CAUSE MELTDOWNS - (1) Climate change raises water temperature leading to the shutdown of some water-cooled reactors. (2) Extended loss of power grid will lead to more Fukushimas.

Thank you to Lisa Kasenow for summarizing Benjamin K. Sovacool's research article, "Valuing the greenhouse gas emissions from nuclear power: A critical survey", and to Eve Andrée Laramée for sharing this with C.A.N.

make up stories about the things that could have been, we can say anything. No evidence is required. Nonetheless, if the other side wants to argue this way, it is valid to respond that the decision not to exploit nuclear energy had no impact on global warming. Only the decision to burn more fossil fuel contributed to global warming. At every step of the way, it would have been possible to burn less, invest in renewable energy, improve infrastructure, retrofit buildings, or commit to any of numerous other conservation options. In any case, nuclear energy does have a considerable carbon footprint, a fact that advocates like to ignore. [27]

Furthermore, there is no way to know how many additional nuclear accidents were averted by the decision to stop building nuclear power plants. If one really wanted to talk about past hypotheticals, we could say all the Great Lakes and the agricultural lands of North America were saved from the same fate as the rice farms of Fukushima Prefecture. But if readers prefer that my hypotheticals be less hyperbolic, I'll simply say that the only thing that saved Three Mile Island from being an enormous disaster was luck. It was fortunate that as a pressurized water reactor (PWR), it had an adequate outer containment structure. Many of the American nuclear power plants that existed at the time were boiling water reactors (BWR), and over twenty of these still operate today. Fukushima Daiichi reactors 1, 2 and 3 were BWR, and they all suffered disastrous explosions because venting failed and the beautiful sky-blue outer containment structures utterly failed to provide the defense in depth that the nuclear industry had always boasted of.

In the past, Pinker has been clever at deconstructing many of the unfounded but cherished assumptions of the progressive left, and it is all well and good to debunk what needs debunking. Yet when it comes to nuclear energy, he seems to have abandoned his usual caution in order to lend his authority as a "leading thinker" to a policy he favors. His status has perhaps tempted him to espouse opinions on matters that others are better qualified to discuss. Pinker has recently made appeals to scholars in the humanities that they have nothing to fear from the participation of scientists in their specialties. [28] Few people would disagree, in principle, with this argument for better cross-disciplinary cooperation, but this facile treatment of nuclear energy proves that in practice there are good reasons for specialists to not welcome passing tourists. Historians, activists and scientists who have spent their lives researching the social and biological impacts of nuclear technology do not appreciate the casual judgments made by a star intellectual who will be taken as an authority on the issue by a mass audience. Pinker weighs in on this issue as one of the world's leading

thinkers, but he is a casual visitor to a land he has made little effort to understand.

Pinker seems to have linked anti-nuclear scientists and activists with his personal observations of leftist naiveté, like the people who thought peace would reign during the Montreal police strike, or a professor who thought the Vietnam War was motivated by a desire to corner the world market in tungsten. [29] However, the popular resistance to nuclear energy isn't one of these issues where a clever realist with a counter-intuitive argument is going to make a bunch of granola-eaters look like scientifically illiterate dupes. Scientists, such as Alice Stewart, John Gofman, Ian Fairlie, Chris Busby, Yuri Bandashevsky, Alexi Yablokov, and many others, [30] have spent decades of their lives researching the health effects of radiation and have come to conclusions that disagree with those of the IAEA and the nuclear industry. They belong to or have worked with such organizations as the *Bulletin of the Atomic Scientists*, the European Committee on Radiation Risk, Greenpeace, Green Cross, the Institute for Energy and Environmental Research, the International Institute of Concern for Public Health, Physicians for Social Responsibility, and the Radiation and Public Health Project. Call their findings "controversial" if you like, but the anti-nuclear movement, and the popular dislike of being forced to live in nuclear contamination cannot be contemptuously dismissed as a "textbook case of the psychology of fear."

In the initial months after Fukushima, many news organizations ran editorials similar to the one in *The New York Times* (cited above), but that was because the full meltdowns and the full severity of the catastrophe were not admitted to until later when the news cycle had moved on and forgotten the issue. After that, the Pollyannas became noticeably quiet. The timing of the *New York Times* editorial was interesting because it showed the reappearance of the trope right at a time when a lot of bad news was leaking out of Fukushima. It callously dismissed the official abuses that people in Fukushima have had to live with, and it mistakenly framed the fear of radiation as a failure to properly assess risk. I've lived in Japan since 2011 and seen very little fear and panic (in fact, a little more concern might be in order), but I have seen a lot of resentment in people who would prefer to not live on contaminated land and eat contaminated food. They would prefer to not be exposed to any level of Strontium-90 nor any of the other toxic fission products that life on this planet did not evolve with. The "fear" is actually anger at and distrust of the institutions that caused and later mismanaged the catastrophe. After repeated lies by the operators of the Fukushima Daiichi plant—and the complicity of governments, the global

nuclear industry, and the IAEA in those lies—the mistrust is well deserved.

Perhaps Pinker has supported nuclear energy because, since publishing *The Better Angels of Our Nature* in 2011, he has stated that he is "a fan of modernity" [31] and is eager to grasp at an apparent solution to energy problems so that moral progress and the decline of violence can continue. Unfortunately, he didn't devote any attention to energy and the ecological crisis in his book. In the concluding pages of it, he even suggests that ecological sustainability is something for which we have "nostalgia" as part of our habitual but erroneous "loathing of modernity." [32] I tried to give a sympathetic reading to the context of these words. I suspect he really didn't want to say what his wording suggests. He is, after all, scientifically literate. He must know the human race will have no "modernity" without a sustainable environment (in denying the effects of Three Mile Island, he did state an acceptance of the reality of global warming), but this passage really does imply that ecological sustainability is something that only sentimental dupes long for, something that should be traded away for the benefits for modernity.

Energy, your slave

Although Pinker's quiet support of nuclear indicates he is now thinking about the role of energy in bringing about the "long peace" and other such positive trends in rates of violence, the book he published two years ago was primarily focused on various non-technological causes of progress, such as the effect of the rise in literacy rates. When people began to read about others who lived in distant times and places, empathy expanded. Yet here too he overlooks the underlying factors that enabled these changes. There had to be printing presses and distribution networks. People needed light in the evenings to read, and the use of energy sources in various applications had freed people from drudgery and given rise to a class of people who had the leisure to read, travel, and enjoy new entertainments.

Instead of acknowledging these causes, Pinker places his emphasis more on what seems to be a magical transformation in human thinking, which is odd for an intellectual who wrote so much about human nature before this. Suddenly, he sounds a little like the post-modern philosophers and cultural determinists he railed against in earlier books. [33] Now he seems to say that we changed because culture, or the will to employ reason, imposed a transformation on human nature. Pinker finds that the greatest cause of the decline of violence is that we made, as a product of The Enlightenment, a commitment to reason, which he claims is like a ride on

an escalator that we must take to whatever height its conclusions lead to.

It would be instructive to also consider a real escalator when we contemplate the reasons for the decline of violence. If it were not for the exploitation of energy resources, this convenient people-mover would have to be powered by servants, slaves, or draft animals (requiring servants or slaves to tend them) turning wheels and gears. Without our modern technologies for energy exploitation, the only way to obtain many comforts would be to put others to work providing them.

Toward the end of the book, Pinker makes the cautiously optimistic conclusion that the downward trend in violence is not guaranteed, but can continue if we are careful. He refers to other contemporary optimists who have come to the same conclusion. He cites as an example Matt Ridley's book *The Rational Optimist*, [34] but he doesn't mention an interesting discussion of energy that this author presented. Ridley makes the direct connection between our increasing exploitation of the earth's stored energy and the decreasing exploitation of humans.

Ridley sees a causal connection in the fact that the rising exploitation of fossil fuels in the 19th century coincided with the decline of slavery, a decline in the number of working poor who did arduous labor, and a steady increase in leisure time and standards of living:

> Thanks mainly to new energy technologies, what took a textile worker twenty minutes in 1750 took just one minute in 1850… It made it possible for fewer people to supply more people with more goods and more services—in Adam Smith's words, to make 'a smaller quantity of labour produce a greater quantity of work'. There was a steep change in the number of people that could be served or supplied by one person, a great leap in the specialisation of production and the diversification of consumption… This is not to make you love coal and oil, but to drive home how much your Louis Quatorze standard of living is made possible by the invention of energy-substitutes for slaves. [35]

This difference between "labor" and "work"—the actual application of energy to transform and move objects in the real world—was more evident to laborers of the past who experienced the relief brought by mechanization. Modern people take it for granted, with no memory of the transition.

To clarify his point, Ridley asks the reader to contemplate how many man-hours of pedaling on an exercise bicycle, attached to an electrical generator, would be necessary to supply the energy needs of the average

person alive in the early 21st century. Not to worry, he's done the math. It's 150 men pedaling around the clock, with many more required to meet the average consumption of First World countries. "These are your slaves," he declares, referring to fossil fuels and other energy sources. Ridley also makes the point that energy is not concerned only with conveniences like escalators and hot water. It also accelerated fertilizer production (with its harm to oceans and freshwater supplies), pesticide use, and the mechanization of agriculture, inviting unforeseen disasters like the loss of pollinating insects and postponing the day when civilization reaches its Malthusian limits. [36]

Ridley points out also that in order for anyone to have the luxuries provided by these hired pedalers, these servants would have to be needy enough to do the work. If they had any disposable wealth, they too would be looking for servants to work them. In order for a few people to have their desires for comfort fulfilled, they would have to oppress many others. Thus, if stored energy supplies became scarce, the demand for "luxuries" (which might be only what we now consider basic necessities, such as hot water) would lead to more inequality. We easily ignore such truths because no one alive today has memories of the age before automobiles. We have lived large for 200 years on energy supplies that took millions of years to form. No modern society yet lives entirely on energy sources produced above ground in real time from renewable sources.

Ridley's thought experiment is somewhat absurd, and the numbers may be off a little, but it makes a striking point about how we have massive stores of energy at our disposal without having to break a sweat, or having to make others break a sweat, to get the benefits that come from them. It is not entirely a coincidence that the industrial world began to find slavery morally intolerable just as a new economy based on fossil fuel was emerging.

One question Ridley fails to address is whether slavery really has ceased to exist entirely. You may not greet your livery servants (or your master) in the morning, but there are people in the Niger Delta (to cite just one example) who are paying a heavy ecological price for the oil exported from their lands to Western nations. [37]

If the cause of the decline of violence is thus concealed by this sort of structural disparity, and if it seems instead to have come from our commitment to reason, that's because so far it has been mostly a free ride with its effects kept out of sight from most of the beneficiaries. In addition to the disparities of the present, ecological damage could be considered the physical manifestation of global financial debt. The cost of remediating

environmental damage for future generations can never be paid off in the present or near term, so the only response has been the irrational decision to ignore the moral imperative of inter-generational equity. We double down, borrow more, and push the day of reckoning farther into the future, as if this can be done forever. Yet we know the costs of carbon and nuclear fuels will be paid by future generations for a long, long time.

Although Pinker attributes the decline in direct violence to the expansion of moral reasoning and critical thought, he never fully explores the possibility that the satisfaction of basic material needs, made possible by energy exploitation, was the most important factor. The point is obvious enough to have been the subject of study in books such as *Environment, Scarcity, and Violence*. [38] Pinker argues the opposite view by pointing to the "resource curse"—the fact that resource-rich nations are often the poorest. [39] In doing so he ignores the methods by which prosperous nations have found ways to obtain the resources of the "cursed." If it were so easy to fix a "resource curse," the people of Niger, for example, would have built nuclear reactors and put French people to work mining uranium for them.

It is intuitively obvious that conflict decreases when people feel that their own, and their neighbors', basic needs are met, and when they see their freedom from drudgery lifting. It might have seemed outrageous when the Pope said in 2009 that the biggest advance for women was the washing machine, [40] but the only way to prove him wrong would be to take away all the gadgets from modern people and see what kind of social order devolves. It wouldn't be great for men, but it would likely be worse for women. Nonetheless, the point that the Pope failed to make was that machines liberated both sexes in ways we take for granted.

Although Pinker credits reason with the decline of violence, he has at other times endorsed Hobbes' philosophy in many of his books. [41] Hobbes famously advanced the notion that without a strong authority to enforce order, life is nasty, brutish, and short. When the state expands, it forces citizens to forswear the right of vengeance, and imposes law and order. Fear and enmity decline and the virtuous circle can take hold. However, again, the exploitation of energy must have been a key factor that enabled states to expand and project power over great distances.

To make a contrast with the security given by a state, Pinker discusses the work of Napoleon Chagnon and other anthropologists whose research showed that people in hunter-gatherer societies have a much higher chance of dying by violence. This has been one of the great controversies in the social sciences, as many anthropologists reject Chagon's findings and have criticized his methods. One of the strongest arguments against the claim

is that there are no pristine tribes to study. They have all been affected by contact with industrial societies, not to mention the anthropologists who study them, so the violence might arise from the pressure on their territories and their desire to trade for weapons and other goods. But even if it is true that they are more violent, it's a value judgment to say people in industrial societies have a better quality of life just because they live longer or die in different ways. Chagnon insisted on this point when he said, with the utmost respect for his subjects, "The real Indians get dirty, smell bad, use drugs, belch after they eat, covet and sometimes steal each other's women, fornicate and make war. They are normal human beings. This is reason enough for them to deserve care and attention." [42]

Pinker argues convincingly against not romanticizing the noble savage or the pastoral, pre-industrial life, but still if we consider criteria other than lifespan and modern comforts, that nasty, brutish, and short life in a rainforest may have been happier by some measures than the life passed in offices and factories, and happier than what is in store for people of the future. For a growing number of people in industrial societies, the air-conditioned nightmare is not even air conditioned anymore. Many inhabitants of decaying First World cities like, for example, Camden, New Jersey, could be forgiven for thinking Hobbes' words, "solitary, poor, nasty, brutish and short," referred to the life that they know. [43] Urban decay and environmental contamination are sorts of structural violence that did not affect hunter-gatherers.

Since the financial collapse of 2008, the disappearance of the middle class has been a recurring theme in political discourse, and it's not unusual to hear talk of an impending collapse of capitalism that would rival the collapse of the Soviet system in 1991. The professor of African and African-American studies, Henry Louis Gates, stresses the connection between prosperity and peace:

> Under Lyndon Johnson we had guns and butter, we thought we had enough prosperity to put everybody in the middle class, and as soon as that dream fell apart, people once again started demonizing one another. Slavery was about economic relations, it was easy to demonize a group of people who looked so starkly different. As scarcity increases, so will racism. So will anti-Semitism. So will homophobia.[44]

This connection is, after all, rather intuitive and obvious, so it is odd that it is not pursued as a cause of the decline of violence in *The Better*

Angels. The connection would seem to be in line with Pinker's support of a constrained vision of human nature and realpolitik that can be traced back through Hobbes and Machiavelli to Thucydides' writing about the Peloponnesian War:

> In peace and prosperity, states and individuals have better sentiments, because they do not find themselves suddenly confronted with imperious necessities; but war takes away the easy supply of daily wants, and so proves a rough master, that brings most men's characters to a level with their fortunes.[45]

Journalist Chris Hedges observed the collapse of the Soviet Bloc in the 1980s, and since the emergence of the Occupy movement he has written about the similarities between then and now. Capitalism, by the definitions it sets for itself in its own discourse, excludes even the possibility of popular rejection of the system, so Occupy has never been taken seriously by established media as an indication of a threat to the system, but for Hedges and other observers, the mainstream media has all the credibility of *Pravda* in the early 1980s. The Occupy movement has all the markings of a movement that will eventually ignite social transformation. Hedges wrote recently:

> The last days of empire are carnivals of folly. We are in the midst of our own, plunging forward as our leaders court willful economic and environmental self-destruction. Sumer and Rome went down like this. So did the Ottoman and Austro-Hungarian empires. Men and women of stunning mediocrity and depravity led the monarchies of Europe and Russia on the eve of World War I. And America has, in its own decline, offered up its share of weaklings, dolts and morons to steer it to destruction… If we had any idea what was really happening to us we would have turned in fury against Barack Obama, whose signature legacy will be utter capitulation to the demands of Wall Street, the fossil fuel industry, the military-industrial complex and the security and surveillance state… The populations of dying empires are passive because they are lotus-eaters. There is a narcotic-like reverie among those barreling toward oblivion. They retreat into the sexual, the tawdry and the inane, retreats that are momentarily pleasurable but ensure self-destruction. They naively trust it will all work out. As a species, Margaret Atwood observes in her dystopian novel "Oryx and Crake," "we're doomed by hope"… It is collective self-delusion, a

retreat into magical thinking.[46]

Pinker was wise enough to make cautious conclusions in order to avoid being cast with those who are "doomed by hope." His tables and charts showing the decline of violence, limited as they are to war and crime, are convincing, but he is careful to note they are all open-ended. There is no guarantee the downward trend in violence will continue. He concedes that one nuclear blast could reverse all progress, but one could argue that ecological crises and political incompetence could have the same effect, just more slowly. So far in the 21st century, there has been growing alarm about the worsening of the ecological crisis, a steady erosion of civil rights due to the "war on terror," a global financial crisis, and constant war in the Middle East.

The mood among many journalists, activists, and social scientists is not at all optimistic. The geophysicist Brad Werner tried to convey the sense of urgency by claiming, in a conference session entitled "Is Earth F**ked? Dynamical Futility of Global Environmental Management and Possibilities for Sustainability via Direct Action Activism," that the science leads to the inescapable conclusion that the only hope is in the successful resistance to the prevailing system of global capitalism. [47]

The role of energy in the decline of violence seems evident in the apprehension that we all have about global warming, nuclear legacies, and various other related ecological problems. As much as protest movements have been against the "one percent," they are also movements in which everyone is against his own energy-dependent job and his own energy consumption habits. No one could ever conclusively prove what caused such a thing as the global decline of violence, but this fear of losing energy supplies seems to speak to a fear that the result will be an increase in deprivation and conflict.

Many people in Japan recognize the dilemma presented by their energy crunch, which may be a harbinger of things to come for other developed nations. The anti-nuclear movement has often extolled the virtues of Japan's agrarian past, [48] but the thought of going back to it also evokes much dread. We know the nation could very well be destroyed by another nuclear calamity, but still the ruling party, industrialists, and a sizable minority of citizens want to flip the reactors back on. "But we need the energy!" they cry, as if to say they would rather risk being dead than being poor. Aside from the obvious threat to the interests of industries and financial markets, individuals fear (incorrectly, because there are alternatives to nuclear and carbon) the loss of energy supplies would mean a loss of jobs

and individual comfort, and greater poverty and inequality. We fear that the road back to the slow life would be chaotic, insecure, and violent. There is a strong temptation to stick with the familiar evils, a choice that renewable-energy advocate Amory Lovins describes as the false choice between dying of oil wars, climate change, or nuclear holocaust. [49] Even if there is no guarantee that another way based on efficiency and renewable energy would be painless, or even successful, attempting it may be the only rational choice. Manhattan Project scientists were never certain they would succeed, but in order to gain the weapon that would lead to supremacy in the coming age, that expensive gamble was deemed worthwhile. Why are we now so hesitant to invest massively in a new energy paradigm?

Statistical Deaths

Ecological damage must surely be counted as a form of violence, but Pinker never connects the decline of violence with the suffering that arose from the exploitation of energy resources. This is a reflection of a value that has become the norm. We have become desensitized to the human suffering implied by what is euphemistically called "allowable risk," which really means the risk we allow ourselves to impose mostly on strangers who are far away and out of sight. In a perverse way, direct violence has the advantage of being its own deterrent. Normal people may have revenge fantasies, but they have a complete revulsion to committing violence when it comes down to spilling blood themselves, or even asking someone else to do it for them. Thus we know the familiar sentiment: I wouldn't wish that on my worst enemy. But this is not the case when we buy products built by child laborers on the other side of the world, or when we fail to protest against governments that kill by remote control. In some cases, statistical violence is self-inflicted. We accept risks to our own bodies to get the benefits of modernity, but for the most part, statistical violence is inflicted on people who don't consent to or benefit in the exchange. This harm is enormous and must be counted as violence, along with the violence of crime and war, yet it gets no mention in the 696 pages of *The Better Angels of Our Nature*.

The rebuttal to this charge might be that I'm playing loose with the definition of violence, faulting the author for his choice to write only about direct violence. I can only insist that resource exploitation should be included in such a study because it coincided with both an increase in structural violence and a decrease in direct violence. The correlation makes for a hypothesis with *prima facie* evidence. It meets the standards

of a good scientific theory, even though it may be more of a philosophical question beyond the reach of empirical proof. Science may never find ways of categorizing certain types of suffering as violence, quantifying suffering, and placing value on the trade-offs humanity has made in exploiting energy resources. Unlike Pinker's statistics on war and crime, the statistics on death and disease caused by industrial toxins are unknowable. The effects of bullets and knives are easy to see, but alpha particles don't leave traces for homicide detectives to discover.

Some cases of energy exploitation may not fit the definition of violence, if we exclude trade-offs that are instances of individuals accepting a risk to gain a necessity. When peasants in India cook with charcoal because it is the only energy source they have, the harm is self-inflicted, not an act of violence. They set themselves up for lung disease in the distant future to have food in the present. Cavemen made similar trade-offs, as do modern people in more prosperous nations when they drive to work on highways.

On the other hand, the social structure that gave peasants the limited choice between suffering lung disease and eating is a kind of violence—the structural violence that Galtung described over forty years ago. Other examples would be wells contaminated with uranium or hexavalent chromium, or rural inhabitants forced to accept nuclear power plants being built on their land. [50] I could list numerous examples of lower socioeconomic groups having to live in the most damaged environments, but the point should be obvious. This sort of violence is widespread and all the more insidious because the torturer and the victim no longer have to face each other. It is crucial to point out also that statistics on violence don't cover repressive arrangements that exist by *threat* of violence or deprivation. Violence becomes apparent only when the oppressed react violently, but oppression tends to be passively tolerated for a very long time.

Structural violence persists because of the quest for profit or because of mistaken notions of national status and security. With structural violence, responsibility could be pinned on individuals, but usually it gets spread through institutions and corporations, and the guilty go unpunished. The victims might be strangers on the other side of the world. Responsibility is diffusely spread further among consumers and citizens who benefit from the arrangements made for them by their governments and corporations. Everyone is guilty, so no one is guilty. The radionuclides are diluted so that everyone has to share the burden, but no one has figured out how to make them disappear.

It may be impossible to quantify the global damage caused by pollution, but scientists have of course tried. In October 2013, the WHO released a study estimating that air pollution, in addition to its well-known impact on heart and respiratory disease, caused 223,000 cancer deaths worldwide in 2010. [51] This is just a measure of one kind of pollution, and it is likely just the tip of the iceberg. Much goes unaccounted for by WHO surveys, especially when it comes to studies of nuclear accidents and military tactics that implicate liability for specific entities that have final say on UN pronouncements.

The official World Health Organization conclusions on Chernobyl are a sad joke to the people who lived through its aftermath, [52] and the travesty is being repeated this year as the WHO contradicted independent reports and claimed there was no rise in birth defects related to the use of depleted uranium during the Iraq War. [53] As noted above, it is WHO studies that are trotted out in regularly recurring editorials that tell us that "radiophobia," not radiation, causes health to decline after a nuclear accident.

In other news that appeared at the same time as the WHO study, a report by the Walk Free Foundation found that 30 million people worldwide live in slavery. [54] Modern slavery has many forms, and they bleed seamlessly into labor conditions we wouldn't call slavery but do, without doubt, deprive workers of dignity and freedom—arrangements such as minimum wages set below the poverty line, or entire nations depending on a workforce of multi-generational "guest workers" who have no pathway to citizenship.

These reports and examples are just hints of the damage caused by pollution and economic inequality, which have to be tallied as forms of violence in any study of its rise and fall. However, one argument is that the damage of industrial activities, slavery, and abusive labor practices is outweighed by the overall gains. If there is a global increase in such indicators as life expectancy, medical care, and living conditions, this is progress. Nonetheless, it still amounts to trading some lives for others. Superstitions supporting human sacrifice are a thing of the past, but statistical violence implies that we still sanction it in a different form. In statistical violence, the winners and losers are sometimes the same people (a wealthy man getting cancer from the herbicides sprayed on his golf course), but usually they are not. A few dozen children in Fukushima have thyroid cancer this year because of the broken power plant that sold electricity to people in Tokyo before they were born. Furthermore, the benefits of modernity have to be considered with respect to the unknowable future consequences of the industrial age. When these factors are considered, it

becomes much more difficult to conclude how much violence has declined. Or, if it has by some limited definition, does it really matter?

We know there will be costs to pay in the future because the future is actually already here. All we have to do is look at the growing list of damaged environments and sacrifice zones. Aside from horrific examples in the Third World, there are examples in the First World where the chickens are coming home to roost.

Canada's sacrifice zone in the Alberta Tar Sands will be as large as Greece, and the promise of remediation made by the oil industry is unrealizable for a cost that anyone is willing to pay. [55] There are other sacrifice zones in the Gulf of Mexico, Chernobyl and Fukushima, in addition to numerous other smaller chemical and radioactive sites that have to be closed off for future use.

Farther away from the sacrifice zones, urban dwellers die young because of particulate smog. Mercury and radioactive contaminants are emitted in the burning of coal and oil, and they fall on the oceans and end up in tuna. If all this damage is to be counted as violence, the escalator of reason would force us to consider the violence done to other species and to the earth itself.

Pinker makes passing mention of these larger issues in the chapter in which he discusses the expanding circle of what we find deserving of moral consideration. Our notion of animal rights, for example, has expanded greatly in past decades, and he says it might yet widen to consider "statistical lives." [56] As I was reading this, I thought this might be the start of the necessary discussion about the morality of letting distant strangers suffer the effects of polluting industries and labor abuses, but it was followed only by a brief mention of soldiers sent to wars by civilians who accept that some of them will die. This is the only hint I could find in the entire book where Pinker alludes to, but ultimately avoids, the moral point made by Voltaire two centuries ago in *Candide*, in the words of the abused slave of Suriname: "It is at this expense that you eat sugar in Europe."[57]

Instead of developing this discussion of statistical lives and arguing more strongly for including it in our moral circle, Pinker drops it and comes close being associated with Voltaire's object of satire, Dr. Pangloss, or what in modern terms appears as neoliberal economic doctrine or "techno-optimism." If global average incomes and life spans are up, and crime and conflict are down, then all is for the best in the best of all possible worlds, it seems. Pinker writes of "modernity's gifts of life itself: the additional decades of existence, the mothers who live to see their newborns, the children who survive their first years on earth," [58] but there is no suggestion

that such gains are often achieved through the sacrifices of people of the present and future who will suffer the effects of uranium mining, dam construction, tar sands development and so on. Somehow, this ends-justify-the-means rationale doesn't do justice to a book about moral progress.

For the past twenty years, Pinker has written brilliantly about topics as varied as language acquisition, irregular verbs, cognitive science and now the history of violence. One can hope that he will next pay some attention to other forms of violence and parts of the world where there is no apparent decline of violence, places where people are paying the price for the peace and comfort gained in other times and places.

Pinker teaches at Harvard, speaks at TED conferences, and travels intensively on the lecture circuit at colleges in the developed world. I can't help but wonder if he would he have written a different book if he had spent his sabbatical in a trailer park in West Virginia coal country, or even just gone on a day trip from Boston to Woburn, Massachusetts, to meet with the families that lost children to pollution-induced leukemia in one of America's more famous environmental scandals. [59] After all, Pinker makes the case throughout his book that it was the increased opportunities for perspective-taking, through travel and reading of journalism, memoir, fiction, and history, that helped drive the expansion of sympathy which drove the Humanitarian Revolution, the Long Peace, the New Peace, and the Rights Revolutions. [60] Perhaps he could be a little less of a Davos Man [61] and venture outside his comfort zone, perhaps to a venue such as the World Social Forum.

In spite of all that I've written above, *The Better Angels of Our Nature* is an important book that should be read by anyone interested in making a more peaceful world. Although I think he neglected an important aspect of his subject, Pinker has certainly shown that he is devoted to building on the progress that has made certain kinds of violence decline. One has to admit that statistics on crime and war are impressive. Our tolerance for the cruelty of past ages has declined rapidly, so there is reason for optimism. If I am correct that the decline in violence came ultimately from the exploitation of energy sources, then it came at a steep price that takes the edge off any enthusiasm for modernity. If humanity ever finds a way to produce energy with less harm to the ecosystem and to the people who sacrifice for it, then there may be a true decline of violence worth celebrating.

Pinker is at his best when he reminds us of our capacity for such change. Societies can transform unexpectedly when change seemed for so long to be impossible. He writes about how just a few centuries ago,

an educated man in London wrote in his journal about going on an errand across town, but made only passing mention of a public torture and hanging that he saw while on his way. In the 1950s, it was widely believed that a nuclear apocalypse was sure to come within the next decade. In 1980, no one would have bet that the Berlin Wall would collapse before the decade was out. Pinker points out convincingly that we have become less tolerant of abuses that were once commonplace, so perhaps these values will stick with us when times get tough and growing numbers of ecological refugees need help.

To these examples of rapid change, I would add that our present energy paradigm could, and should, shift rapidly away from carbon and uranium. Nuclear energy could fall from favor quickly once its hazards are fully understood. We have had three major accidents (Three Mile Island, Chernobyl, and Fukushima) within 32 years. In addition, there are major deficiencies in the proposals for implementing new (but actually old) reactor designs. The waste legacy remains unsolved and is an immoral burden on future generations. Nuclear energy is inseparable from the development of nuclear weapons, and there is enough danger in dealing with just the hazards that have been created so far. We haven't really begun shutting down existing reactors and getting nuclear waste out of contact with the ecosystem, and society is yet to wake up to the enormous costs, and perhaps even the impossibility, of this project. Then there is the cost of future accidents, which may come in the midst of war, sabotage, natural disasters, or just a declining ability of countries to manage this expensive and technically complex problem.

On April 20, 2011, as the Fukushima catastrophe was still unfolding, and barely comprehended, Ban Ki-moon, the UN General Secretary, stated during a visit to Chernobyl:

> To many, nuclear energy looks to be a relatively clean and logical choice in an era of increasing resource scarcity. Yet the record requires us to ask painful questions: have we correctly calculated its risks and costs? Are we doing all we can to keep the world's people safe? The unfortunate truth is that we are likely to see more such disasters. The world has witnessed an unnerving history of [near]* accidents. We have seen in Japan the effects of natural disasters, particularly in areas vulnerable to seismic activity. [62]
>
> (*Author's note: It seems that the transcribers in the UN nuclear bureaucracy decided to make their own preferred interpretation of an

inaudible segment of Ban Ki-moon's speech. A word was not clear in the audio perhaps, so they concluded he must have said "near" accidents rather than "nuclear" accidents, or just "accidents," even though "near" makes no sense in this context. Accidents happened. There is no ambiguity at all in the historical record. Chernobyl and Fukushima were not "near" accidents. It is not clear what the brackets are supposed to signify, but the word "near" appears strangely between them in the published UN statement.)

A similar question can be asked about violence. Have we correctly defined it and accounted for all of its causes? Does the apparent decline in violence have any meaning if we have neglected to count the violence of economic inequality and environmental destruction? When we consider the uncertainties of interpreting the historical record, and the complete uncertainties of the future, there is only room for limited optimism, based on an understanding of the way that moral values have changed and certain forms of violence have been reduced. Perhaps we have learned enough to comprehend the scale of the challenge and the need for change. Soon we might see the energy equivalent of the fall of the Berlin Wall: the rapid formation of taboos on exploitive labor relations and industries we only recently found acceptable. Or it may be a slow, painful transition like the abolition of slavery. With proper attention paid to developing a renewable economy and renewable energy, the decline in direct violence could be followed by a decline in structural violence as well. That would be the kind of modernity worth being a fan of.

Notes

[1] "World Thinkers 2013," the results of *Prospect* magazine's world thinkers poll, April 24, 2013, http://www.prospectmagazine.co.uk/magazine/world-thinkers-2013/#.UmOFnvlmiSo.

[2] Steven Pinker, *The Better Angels of Our Nature: Why Violence Has Declined* (New York: Viking, 2011).

[3] Edward S. Herman and David Peterson, "Steven Pinker on the Alleged Decline of Violence," *Dissident Voice*, December 5, 2012, http://dissidentvoice.org/2012/12/steven-pinker-on-the-alleged-decline-of-violence/.

[4] Chris Williams, "Violence Against Our Environment," *Socialist*, December 5, 2013, http://www.thesocialist.us/violence-against-our-environment/. This article is cited as just one example of many essays that have applied the terms of human conflict to crimes against the environment, using such terms as *violence*, *rape*, and *atrocity*. The suffix *cide* has also been added to *eco*.

[5] Pasquale Cirillo and Nassim Nicholas Taleb, "On the statistical properties and tail risk of violent conflicts," *Physica A: Statistical Mechanics and its Applications* 429, 252-260, 2016, DOI 10.1016/j.physa.2016.01.050.

[6] Johan Galtung, "Violence, Peace, and Peace Research," *Journal of Peace Research* 6, no. 3 (1969): 167-191. Galtung coined this term that refers to social structures and institutions preventing people from meeting their basic needs.

[7] Friedrich Engels, "The Great Towns," in *Condition of the Working Class in England*, first published in Leipzig, Germany, 1845; first English edition published in 1887 in New York, http://www.walkingbutterfly.com/2012/07/26/engels-on-social-murder/.

[8] James Hansen, "20 Years Later: Tipping Points Near on Global Warming," *Huffington Post*, June 23, 2008, http://www.examiner.com/article/the-1-billion-dollar-climate-change-cover-up-crimes-against-humanity. Hansen anticipates testifying against energy company CEOs in future trials, but does so without a hint of irony. Opponents of nuclear energy, which Hansen promotes as a solution to global warming, might imagine a day when Hansen himself would be on trial for the catastrophes caused by nuclear disasters.

[9] "Steven Pinker: Human Nature in 2013," *Economist*'s "World in 2013 Festival," December 8, 2012, http://www.youtube.com/watch?v=tFDJJ1KydgE#t=1013.

[10] Robert Trivers, *The Folly of Fools: The Logic of Deceit and Self-Deception in Human Life* (New York: Basic Books, 2011).

[11] John Horgan, "Why We Lie," a review of *The Folly of Fools* by Robert Trivers, *New York Times*, December 23, 2011, http://www.nytimes.com/2011/12/25/books/review/the-folly-of-fools-by-robert-trivers-book-review.html.

[12] Steven Pinker, 620.

[13] Steven Pinker, 476.

[14] Steven Pinker, tweeted on April 24, 2013 by @sapinker, visible from a list of recent tweets seen at stevenpinker.com on December 28, 2013. He offered no comment on the film, but the tweet was a promotion of an upcoming screening of *Pandora's*

Promise at MIT, which would seem to be an endorsement. Followers "favorited" the tweet and thanked him for it.

[15] David Ropeik, "Fear vs. Radiation: The Mismatch," *New York Times*, October 21, 2013, http://www.nytimes.com/2013/10/22/opinion/fear-vs-radiation-the-mismatch.html.

[16] Steven Pinker, tweeted on October 22, 2013 by @sapinker, visible from a list of recent tweets seen at stevenpinker.com on October 26, 2013.

[17] John Dudley Miller, "A False Fix for Climate Change," *Bulletin of the Atomic Scientists*, September 11, 2013, http://thebulletin.org/false-fix-climate-change.

[18] Tom Burke, "Can We Risk Another Fukushima?," *Ecologist*, November 29, 2013, http://www.theecologist.org/blogs_and_comments/commentators/2171501/can_we_risk_another_fukushima.html.

[19] Steven Pinker, "The Lessons of the Ashkenazim: Groups and Genes," *New Republic*, June 17, 2006, http://pinker.wjh.harvard.edu/articles/media/2006_06_17_thenewrepublic.html.

[20] G. Cochran, J. Hardy, and H. Harpending, "Natural History of Ashkenazi Intelligence," *Journal of Biosocial Science* 38, no. 5 (2006): 659-693. doi:10.1017/S0021932005027069.

[21] Steven Pinker, *The Better Angels of Our Nature: Why Violence Has Declined*, 284.

[22] Steven Pinker, 346.

[23] John Mueller, *Atomic Obsession: Nuclear Alarmism from Hiroshima to Al-Qaeda* (New York: Oxford University Press, 2010).

[24] Steven Pinker, *How the Mind Works* (New York: Norton, 1997), 368. The author covers this subject in other books: *The Language Instinct* and *The Blank Slate*.

[25] Aileen Mioko Smith, "Three Mile Island: The People's Testament," *Three Mile Island Alert*, March 29, 1987, http://www.tmia.com/node/118.

[26] Steve Wing et al., "A Re-evaluation of Cancer Incidence near the Three Mile Island Nuclear Plant: The Collision of Evidence and Assumptions," *Environmental Health Perspectives* 105, no. 1 (1997): 52-57, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1469835/pdf/envhper00314-0052.pdf.

[27] Benjamin K. Sovacool, "Valuing the Greenhouse Gas Emissions from Nuclear Power: A critical survey," *Energy Policy* 36 (2008): 2940-2953.

[28] Steven Pinker, "Science is Not Your Enemy," *New Republic*, August 6, 2013, http://www.newrepublic.com/article/114127/science-not-enemy-humanities.

[29] Steven Pinker, *The Better Angels of Our Nature: Why Violence Has Declined*, 674. The police strike is mentioned on page 122.

[30] Ian Fairlie, "A 100 mSv Threshold for Radiation Effects?" November 27, 2012, http://www.ianfairlie.org/news/a-100-msv-threshold-for-radiation-effects/. I will wade no further into the argument among scientists and activists over the health effects of low-dose radiation. This reference is given as an overview and a reference to further sources.

[31] "Steven Pinker: Human Nature in 2013," *Economist's* "World in 2013 Festival," December 8, 2012, http://www.youtube.com/watch?v=tFDJJ1KydgE#t=1013.

[32] Steven Pinker, *The Better Angels of Our Nature: Why Violence Has Declined*, 692.
[33] Steven Pinker, *The Language Instinct: How the Mind Creates Language* (New York: Harper Perennial Modern Classics, 1994). A chapter is devoted to a critique of the "standard social science model."
[34] Steven Pinker, *The Better Angels of Our Nature: Why Violence Has Declined*, 692.
[35] Matt Ridley, *The Rational Optimist: How Prosperity Evolves* (New York: Harper Collins, 2010), 236-237.
[36] Carlo Rotella, "Can Jeremy Grantham Profit From Ecological Mayhem?," *New York Times*, August 11, 2011, http://www.nytimes.com/2011/08/14/magazine/can-jeremy-grantham-profit-from-ecological-mayhem.html?pagewanted=all. The views of Jeremy Grantham, owner of a $100-billion asset-management fund, were described this way: "Grantham argues that the late-18th-century doomsayer Thomas Malthus pretty much got it right but just had the bad timing to make his predictions about unsustainable population growth on the eve of the hydrocarbon-fueled Industrial Revolution…That put off the inevitable for a couple of centuries..."
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[41] Steven Pinker, 31-57.
[42] Emily Eakin, "How Napoleon Chagnon Became Our Most Controversial Anthropologist," *New York Times Magazine*, February 13, 2013, http://www.nytimes.com/2013/02/17/magazine/napoleon-chagnon-americas-most-controversial-anthropologist.html?pagewanted=all&_r=1&.
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[44] Daniel D'Addario, "Henry Louis Gates: 'Since Slavery Ended, All Political Movements Have Been About Race'," *Salon*, October 20, 2013, http://www.salon.com/2013/10/20/henry_louis_gates_since_slavery_ended_all_political_movements_have_been_about_race/.
[45] Thucydides, *The History of the Peloponnesian War*, trans. Richard Crawley (Charleston: CreateSpace Independent Publishing Platform, 2009) Chapter 10.
[46] Chris Hedges, "The Folly of Empire," *Truthdig*, October 14, 2013, http://www.truthdig.com/report/print/the_folly_of_empire_20131014.
[47] Naomi Klein, "How Science is Telling us all to Revolt," *New Statesman*, October

29, 2013, http://www.newstatesman.com/2013/10/science-says-revolt. Klein's article summarizes Brad Werner's session at the Fall Meeting of the American Geophysical Union, December 2012.

[48] Akira Kurosawa's film *Dreams* (1990) was a collection of short stories depicting the director's memorable dreams. After one dream depicting a nuclear catastrophe, which seemed to presage what happened at Fukushima Daiichi, Kurosawa finished the film with an idealized portrayal of a return to a pre-industrial village.

[49] Amory Lovins, "A 40-Year Plan for Energy," March, 2012, TED Talk at ted.com, http://www.ted.com/talks/amory_lovins_a_50_year_plan_for_energy.html.

[50] P.K. Sundaram, "Koodankulam: Indian Democracy Under Nuclear Threat," *DiaNuke.org*, November 23, 2011, http://www.dianuke.org/democracy-nuclear-koodankulam.

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[52] Alla Yaroshinskaya, *Chernobyl: Crime Without Punishment* (Transaction Publishers, 2011). There have been numerous research papers, books, and articles written about the collusion between the IAEA and the WHO. This is a thorough history of Chernobyl, told by a Ukrainian journalist and politician who was on the ground from the beginning of the crisis. Eye-witness accounts cast doubt on the claims that radiophobia and social factors caused most of the health damage.

[53] Nafeez Ahmed, "How the World Health Organization Covered up Iraq's Nuclear Nightmare," *Guardian*, October 13, 2013, http://www.theguardian.com/environment/earth-insight/2013/oct/13/world-health-organisation-iraq-war-depleted-uranium/.

[54] Alex Smith, "30 Million People Still Live in Slavery, Human Rights Group Says," *NBC News*, October 17, 2013, http://worldnews.nbcnews.com/_news/2013/10/17/21005059-30-million-people-still-live-in-slavery-human-rights-group-says.

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[56] Steven Pinker, *The Better Angels of Our Nature: Why Violence Has Declined*, 423.

[57] Voltaire, *Candide* (1759) chapter 19.

[58] Steven Pinker, 692.

[59] Dan Kennedy, "A Civil Action: The Real Story," *Boston Phoenix*, 1998, https://dankennedy.net/woburn-files/a-civil-action-the-real-story/. Kennedy describes the background not told by the film *A Civil Action*, and notes, "Woburn is one of the birthplaces of the Industrial Revolution. A toxic brew of chemicals has been floating through the Aberjona River valley, which bisects Woburn, for more than 150 years."

[60] Steven Pinker, 583.

[61] Akash Arasu, "The Evolution of the Davos Man," *Huffington Post*, January 22, 2013, http://www.huffingtonpost.com/akash-arasu/davos-man_b_2529544.html. Arasu says,

"Davos Man was meant to refer to members of the global elite who view themselves as completely international. They have no need for the term 'nationality' and feel that governments are merely shadows of time past to be used as facilitators in their global operations."

[62] Ban Ki-moon, "Remarks at '25 Years after Chernobyl Catastrophe: Safety for the Future' conference," United Nations, https://www.un.org/sg/en/content/sg/speeches/2011-04-20/remarks-25-years-after-chernobyl-catastrophe-safety-future-conference, April 20, 2011.

PART THREE:
NUCLEAR WEAPONS

Times Square welcomes the Soviet hammer and sickle, December 1988, during Gorbachev's visit to New York when he made his famous speech at the United Nations.

19. Bikini: *La Bombe Anatomique*

If people know about the American nuclear weapons that were exploded in the Bikini Atoll in the Pacific, they tend to think the swimsuit of the same name is just a strange coincidence, if they give any thought at all to it. There is no apparent connection, but actually it was more intentional and profound than one would at first think.

In July 1946, Louis Réard was told that his upcoming swimsuit design was something the world was not ready for, so, feeling he needed to make a big splash, he grabbed a name out of the recent headlines and called his two-piece creation the bikini. The swimsuit debuted on July 5, 1946 at the pool in the Hotel Molidor, Paris, just five days after the first of many nuclear explosions in the Bikini Atoll of the Marshall Islands.

In fact, the arrival of the bikini had the effect of a bomb in the fashion world. The reaction was so extreme that Réard even had trouble finding a model willing to wear it for the debut. At last, a nude dancer named Micheline Bernardini rose to the occasion and claimed her fame as the first woman to wear a bikini. Commentators stretched their imagination to relate it to all things atomic, saying for example that it was a "weapon of mass seduction" on the beaches and fashion runways of the world. By the early 1960s, the sexual revolution had arrived and attitudes changed. At the end of the decade it was standard beachwear in Europe and the Americas.

In his book *Hungary to Hollywood Express*, Eric Plamondon describes the public reaction in 1946:

> The press was in a frenzy about the first *bombe anatomique*, as it was called in publicity. In baptizing his creation with the name of the atoll where the most destructive weapon in history had been used, he said he was creating a "weapon of mass peace," thinking that when we can see women strolling in bikinis, men will forget about making war. The day after the show at the Molitor pool, certain acerbic Parisian critics said that it was called the bikini because it would be the only thing left on the body after a nuclear explosion. [1]

It would be easy to say that Louis Réard was trivializing the horrors of what was happening on the Bikini Atoll and just hopping on a popular marketing trend of the day, one that saw the word *atomic* overused with callous disregard for the victims in Japan and on the testing sites. It appeared he was being disingenuous in saying that a more peaceful world would come from a fashion that seemed to be deliberately designed to incite lust. It's a given in biology that the sexual instinct is what drives male competition, and the historical record of powerful alpha males acquiring harems and mistresses attests to this fact. Evolutionary psychology claims that female desires are a part of the problem, too, inasmuch as women encourage male competition and show a preference for high-status men.

I have no way of knowing what Réard was really thinking, but I would like to think that he was being more sincere and serious than dimwitted fashion critics gave him credit for. Philosophers of the time were pronouncing that mankind had to change, that the bomb had changed everything, that civilization would not survive another war. But how were we to extinguish this aggressive tendency toward war? No one had an answer, but here was an apparently frivolous designer of flimsy swimwear pointing the way. If the selfish gene, the sexual instinct, was the root of all war, then he was right. We would have to get used to women strolling past half-naked, get over the male gaze, and think more deeply about what the bikini says about exposure and vulnerability in the atomic age. The bikini really is a work of art with strings connecting it to the Bikini Atoll.

The bikini was said to be a figurative *bombe anatomique*, while the atom bomb was too. Radiation literally targeted the human anatomy at the molecular level, so this term coined by Réard was apt in ways he may not have understood himself. Radiation is an assault on the body. Hindsight tells us that the men who brought the bomb into existence were frighteningly reckless about the monster they were unleashing on the world. Scientists knew at the time that radiation posed serious dangers that were very difficult to control, but it wasn't until the next decade that DNA was understood and the mechanism of genetic damage became clearer. The nuclear industry is still in denial about how bad the problem is, but I think Louis Réard had an intuitive understanding of the problem at the dawn of the nuclear age.

Later research revealed that women, children and especially fetuses are more sensitive than men to the effects of radiation [2], so Réard was very prescient when he asked us to look at what his creation revealed. A high-cut bikini accentuates the lower abdomen, while a low-cut one, unlike any article of clothing before it, reveals it for all to see. And what is there to contemplate? Therein lies the crucible of life, and despite all the other flesh

on display, people in 1946 were most scandalized by the sight of the navel. The lower abdomen revealed by a bikini can be the pregnant vessel of three generations—the mother, the daughter, and the ova inside that daughter. And this is what was now exposed—to the radiation from global fallout and to the eyes of the civilization that had made the bombs. I'll give Louis Réard the benefit of doubt and say this is why he believed the bikini should put an end to war.

Notes

[1] Éric Plamondon, *Hongrie-Hollywood Express* (Le quartanier, 2011), p. 81. Cited in http://dagi.pagesperso-orange.fr/page-labombe-5.html.

[2] For information on the higher vulnerability to radiation in women, children and fetuses, listen to these two episodes of Libby HaLevy's podcast *Nuclear Hotseat*, www.nuclearhotseat.com:

Episode 165: Interview with Dr. Ian Fairlie on leukemia rates of children living near nuclear plants.
Episode 191: Atomic Eggs: Increased female vulnerability to radiation.

20. Canada in the Manhattan Project

In the summer of 1998, representatives of the Dene people of Great Bear Lake in the far north of Canada went to Hiroshima to express their remorse for having hauled the uranium ore that went into the atomic bombs dropped on Japan. They had had no foreknowledge of what they participated in, and they suffered afterwards from the effects of radiation, but still they felt responsible.

Until the 1990s, because of their isolation and neglect by the Canadian government, they had little understanding of where those "money rocks" had gone, and little awareness of the rocks' connection to numerous deaths among them from strange new illnesses. But then journalists, academics and filmmakers began to appear with questions about the past and information about the causes of those illnesses. The Dene were dismayed by the neglect they had suffered, but were equally burdened by the new awareness of what they had helped to bring upon Japanese people. Their sense of responsibility knew nothing of the civilized impulse toward self-exculpation. They felt responsible for not having asked questions about what they had agreed to work on, for not having made every effort to understand the implications of their participation. The world might be a better place if everyone tried to live up to this ethical standard.

In 1998, Canadian journalists, in particular Andrew Nikiforuk of the *Calgary Herald*, shed light on the story of the Port Radium mine, and in 1999 the documentary film *Village of Widows* [1] covered the story, including the trip by Dene representatives to Japan. Peter van Wyck returned to it more recently in his book *Highway of the Atom* [2]. Nonetheless, the story is forgotten (or never-known) history for most Canadians. When a nuclear-powered Soviet satellite crashed over the Northwest Territories in 1978, widely dispersing radioactive waste over Canada's uranium mining belt, it was an irony lost on everyone.

The most interesting twist in the story is that in 2005-06, during the peak of the so-called "nuclear renaissance," film director David Henningson headed up to Great Bear Lake to make *Somba ke: The Money Place*, a documentary about the relations between the Dene and Hiroshima and

Nagasaki. During filming he found that attitudes had shifted since 1999, and he ended up making a film very different from the one he had set out to make. The Dene were now reluctant to speak of the past because a mining company called Alberta Star had concluded an agreement with them to reopen the uranium mine. This time, of course, the Dene were promised that things would be different, and they were eager to have some economic development. However, the community was still divided, and in 2008, the Deline Land Corporation (Dene controlled) announced they would oppose all future uranium development until remaining issues with the old Port Radium mine were resolved.

However, at the time Henningson was making his film, the pro-development faction was influential, so the trip to Hiroshima was called off and Henningson found many of the locals were mysteriously unwilling to speak with him. Three years later in 2011, the multiple meltdowns at Fukushima Daiichi put an end to the hope for a nuclear renaissance. With existing mine operations slowing down now, it is unlikely that the Deline Land Corporation could sell uranium even if they wanted to.

In July 2014, the Center for Glocal Studies sponsored a screening of Somba Ke *and a talk with the film's directory, David Henningson.*

At other active uranium mine sites in Northern Canada, aboriginal communities are divided on their support for nuclear energy [3], but for the most part they have made peace with the atom and are working for and with uranium mining companies. As far as I know, none of them have offered

apologies for the Saskatchewan uranium that was in the Fukushima Daiichi reactors.

The major article that broke the story of Port Radium after fifty-five years of neglect was Andrew Nikiforuk's work in the *Calgary Herald* in 1998. [4] As Alberta and Canada have taken on the typical characteristics of a petro-state, the mainstream media has had little tolerance of energy critics like Andrew Nikiforuk. This may be the reason this important piece of journalism and others that he wrote no longer exists on the *Calgary Herald* website. He now covers the Alberta Tar Sands and the energy crisis for *The Tyee*, one of Canada's best alternative media journals. The 1998 article can now be found on the website of the Canadian Coalition for Nuclear Responsibility.

The Port Radium mine was first exploited in the 1930s when uranium was still considered a metal of no value. At that time it was radium in the ore that was valuable for its use in cancer treatments and luminescent paint. The discovery of rich ore in the far north of Canada was important enough for the Eldorado Mining and Refining Company to set up a processing facility in Port Hope, Ontario, on the shores of Lake Ontario east of Toronto.

Ten years later, when the Manhattan Project began looking for sources of uranium, its two major sources were the Congo and the Port Radium mine. The processing plant in Port Hope became one of the more important facilities in the race to build the bomb. It did the primary processing of both the Canadian and the African ore, and sent it south through the Niagara Falls and Buffalo area. Processing facilities there, like the one in Port Hope, also left a legacy of radioactive contamination that is another example of forgotten nuclear history. [5]

Canada and the UK were junior partners in the Manhattan Project, eager to supply the Americans with whatever they asked for, including secrecy and an absence of political debate about what was being built and how it would be used. Because America led the Manhattan Project, Canada and the UK could evade their responsibility and keep their participation out of the spotlight. The Manhattan Project came to be understood worldwide as an American project. Hundreds of books and documentaries have been made about it, many classified documents have been released, and American nuclear workers have been compensated to some degree for injuries.

In contrast, many of the documents related to Canada's role remain classified, and the public remains generally ignorant that Canada participated in the Manhattan Project at all. Few academics and journalists have written about the trail uranium followed from Port Radium to Port

Hope, known as the Highway of the Atom. One reason for this invisibility is the extreme remoteness of the Port Radium mine, and the small number of people involved in the work, but the main reason must be that most Manhattan Project operations were done in the US, and after the war America controlled the narrative about how the bomb was built.

When the Canadian story finally got some exposure in the 1990s because of Andrew Nikiforuk's work, the Dene began to speak up about the illnesses among them, and Canadian officials had to respond. Health studies were done by Canadian nuclear regulatory agencies which, unsurprisingly, concluded that no causal relation could be proven between cancer deaths of the native ore carriers and their assumed exposure to radiation.

In the film *Somba Ke: The Money Place*, the biologist Rosalie Bertell had this to say about the official study:

> … whoever set this up knew very well that there was no feasibility for a traditional epidemiological study using current techniques… you can't do modern epidemiology on a small community. So to do an expensive study of the feasibility was ridiculous. They decided that they would use cancer death as a criterion for the seriousness of the contamination… They kind of forgot about all the other health effects, although they were well known and they were known to the Canadian Government. It was pretty well spelled out for them in official documents. But I thought it would be more direct and efficient to do blood samples on people as well as 24-hour urine analysis to find out if there was uranium in the body. It would have been simpler, more direct and cheaper, much cheaper. Around $30,000, which is a pittance compared to what all these engineering firms take.[6]

Andrew Nikiforuk was also interviewed in the film and he pointed out that, in spite of the history of dreadful abuse and neglect suffered by aboriginal communities, in this age they have some power as communities that can speak with a common voice and get attention. The government had to at least go through the motions of investigating their suffering. The natives carried the ore and transported it on ships and barges, but it was white laborers from the south who worked in the mine. After a few years of work, they scattered to various places throughout Canada. Their health outcomes were ignored until it was mostly too late for them. Nikiforuk recounted in the film:

> … after the story ran [in the *Calgary Herald*], I was amazed at the

> number of calls I got from white miners who worked at Port Radium and who were all reporting health problems. I got many calls from widows who explained to me that their husbands had died of cancer… The final report which I think cost close to seven million dollars is really a travesty, on a number of fronts. It's very narrow in its scope. It only addresses the health issues of approximately 30 Dene … It doesn't mention the health problems the Navajo had in the southwest of the US. It ignores the fact that thousands of European workers were exposed to dangerous tailings and radon gas in the mine. It doesn't look at any of the broader issues. It's so narrow it's almost useless. It keeps the whole issue narrowly confined to one place and makes sure very few Canadians, or very few Japanese, or very few Americans ever find out about this history. I am not surprised by the fact that there is little or no opposition from the community in Deline. And I think it is important for people outside of the country to recognize that a lot of issues in Northern Canada are resolved by buying people off. And the Federal Government does this on a routine basis. They have bought a lot of silence in Northern Canada on the issue of uranium mining. [7]

It would be nice if we could say this is all history and lessons have been learned, but in recent years the policies of the federal and provincial governments seem destined to lead to the similar environmental and public health disasters. Scientific research has been defunded and muzzled, [8] while energy corporations have sanitized media coverage through the influence they exert as sponsors. There are grave doubts that the tar sands can be developed without disastrous impacts, and the public seems to just shrug at the prospect of a sacrifice zone the size of Greece. Meanwhile, uranium mine tailings and spent nuclear fuel present a hazard lasting into the deep future, yet these too are issues that the mainstream of society is not expected to think about.

Port Radium (Eldorado) Timeline [9]

1932: Port Radium begins production. Mines Canada issues health warnings on radon gas and radioactive dust.
1939: Canadian ore used in first atomic chain reaction experiment.
1940: Port Radium closes.
1941: Port Radium reopens for war effort, as world's first uranium mine.
1942: United States government orders 60 tons of uranium. Canadian

government secretly begins to buy out mine. Dene work as coolies.
1945: Bombs dropped on Japan.
1949: U.S. officials raise health concerns about Port Radium miners.
1953: First Port Radium miner dies of cancer. United States government secretly begins health studies on U.S. miners.
1956: Value of uranium production hits $1 billion in Canada.
1957: Elliot Lake mine opens.
1960: Port Radium mine closes. No uranium left. First Dene dies of cancer.
1967: First radon standards set.
1974: First uranium miners with lung cancer compensated by Ontario.
1976: Ham Royal Commission slams government for hiding health information from miners. First Ontario studies published.
1979: First cancer death study on Port Radium miners.
1988: Canadian government merges Eldorado with the Saskatchewan Mining Development Corporation to form Cameco.

Notes:

[1] Peter Blow (director), "Village of Widows" (1999; Lindum Films), DVD, http://lindumfilms.com/villageofwidows.

[2] Peter van Wyck, *Highway of the Atom* (McGill-Queens University Press, 2010).

[3] Andrew Loewen, "Legal action seeks transparency from Northern Village of Pinehouse regarding uranium contracts," *Briarpatch Magazine*, January 27, 2014, https://briarpatchmagazine.com/announcements/view/legal-action-pinehouse.

[4] Andrew Nikiforuk, "Echoes of the Atomic Age: Cancer kills fourteen aboriginal uranium workers," *Calgary Herald*, March 14, 1998, http://www.ccnr.org/deline_deaths.html.

[5] Geoff Kelly and Louis Ricciuti, "The Bomb that Fell on Niagara," *Artvoice*, September 24, 2008, http://artvoice.com/issues/v7n39/the_sphere.html.

[6] David Henningson (director), "Somba Ke: The Money Place" (2008; Urgent Service Films), http://cargocollective.com/AsaNisiMasa/filter/Director/Somba-Ke-The-Money-Place-NHK.

[7] Henningson, "Somba Ke."

[8] Julia Sisler, "Research Cutbacks by Government Alarm Scientists," *CBC, January* 10, 2014, http://www.cbc.ca/news/technology/research-cutbacks-by-government-alarm-scientists-1.2490081.

[9] Nikiforuk, "Echoes of the Atomic Age."

21. *Blind Faith*, Port Hope, and Public Charity for a Corporate Citizen: The Nuclear History of Port Hope, Ontario

Since the 1940s, nuclear weapons tests, power plant failures, and uranium mining have left radioactive contamination at hundreds of sites around the world. Whether the contamination is from weapons tests, accidents, or just reckless routine operations, the story of the affected people unfolds in much the same way, as if it were a formulaic plot for a generic television soap opera. Communities that have been chemically contaminated follow much the same script, but radiation adds some distinctive elements to the situation.

Radiation is invisible, and it has always been imbued with a diverse range of magical powers in science fiction. Ironically, in a very real sense, radiation does make people invisible. In the words of Robert Jacobs of the Hiroshima Peace Institute, victims of radiation often find that "their relationships to their families, to their communities, to their hometowns… have been broken… they have become expendable and that their government and even their society is no longer invested in their wellbeing." [1] Once groups of people have become victims of a radiological contamination, they are, in addition to being poisoned, marginalized and forgotten. Their traditions and communities are fragmented, and they are shamed into concealing their trauma. When contamination occurs, there is a strong impulse even among many victims to not admit that they have been harmed, for they know the fate that awaits them if they do.

The victims are helped in this denial by those who inflicted the damage on them, because nuclear technology, both for weapons and electricity production, has always been treated as two sides of a single national security problem that requires secrecy and the occasional sacrifice. Its workings must be hidden from enemies, terrorists, and citizens themselves. Thus governments have never been interested in helping their citizens investigate nuclear accidents and environmental damage left in the wake of

nuclear development.

As secretive programs of nation-states, nuclear complexes operate free of any governing body that could provide checks and balances. In this sense, they are a more intractable problem than the corporate villains that are occasionally held in check by government supervision. The American tobacco industry was eventually forced into retreat by government, and it had to pay enormous damages to state governments for health care costs, but the nuclear weapons and energy complexes still operate free of any higher power that could restrain or abolish them.

Thus it is that the *hibakusha* (the Japanese word for radiation victims) become invisible. When a new group of people become victims, such as in Fukushima in 2011, they feel that they have experienced a unique new kind of horror. For them, for their generation, it is new, but for those who know the historical record, it is a familiar replay of an old story. The people of Fukushima should know by now that they are bit players who have been handed down a tattered script from the past.

A case in point can be found in *Blind Faith*, the superb 1981 book by journalist Penny Sanger, about the small irradiated Canadian town of Port Hope on the shores of Lake Ontario. [2][3] In the 1970s, it faced (and more often failed to face) the toxic legacy of processing radium, then uranium, for nuclear weapons and nuclear power plants. In a saner world, this book would not be out of print and forgotten. It would be a classic text known by everyone who has ever had to share a town with a dangerous corporate citizen. Then there would be no surprises when a nuclear reactor explodes or a cancer cluster appears somewhere new. It wouldn't be a shock to see the victims themselves fall over each other in a rush to excuse their abuser, beg for a continuation of jobs and tax revenue, and threaten the minority who try to break the conspiracy of silence.

On the back cover of the 1981 paperback edition of *Blind Faith* there was an endorsement by the late great Canadian writer Farley Mowat, who passed away in the spring of 2014:

> Penny Sanger has written a fascinating and fearsome account of the emotional turmoil that engulfs a small town when it discovers that its major industry is a threat to the health of its citizens. This is a classic account of how economic power enables industry to ride roughshod over those who must depend on it for their daily bread.

Although I wrote above that *Blind Faith* illustrates universal truths about what happens to communities contaminated with radiation, there are

always unique aspects of each situation that come into play. In this case, we see the extreme complacency and obliviousness of Canadian society to the role that the country played in the development of nuclear weapons and nuclear power. The uranium refinery in Port Hope was a key element in the Manhattan Project, which developed nuclear weapons in the 1940s. Port Hope was the main facility for refining uranium ores from the Congo and northern Canada. However, as a subordinate nation in the American-led effort, Canada's cooperation was a given, and it had to follow along in complete secrecy. There was no political debate in the US, and it was the same in Canada. Canada was "just taking orders" without assuming any responsibility. Being Canadian myself and living in Japan, I can attest that we are still largely ignorant about Canada's complicity in making the bombs that fell on Japan, as we are about being one of the sources of the uranium that was in the reactors of Fukushima Daiichi.

Another factor in our sense of irresponsibility is the comfortable delusion that the worst of Western crimes are committed by the evil empire south of the border. We perceive ourselves as innocent, content to focus on our universal health care and multiculturalism as emblems of our humanitarian values.

The Port Hope refinery began operations in the 1930s to produce radium from uranium ore. The ore came from the recently discovered rich deposits in the Port Radium mine on the shore of Great Bear Lake in the Northwest Territories. This mine would later become one of the primary sources of uranium for the first atomic weapons, but in the 1930s radium was the only product that had value, for its use in making luminescent paint and medical applications.

By the 1930s it was well understood that radium and uranium mines were extremely dangerous. The high lung cancer rates of miners in Czechoslovakia had been noted for a long time, but there were others who failed to acknowledge any connection. Marie Curie, the Nobel Prize-winning pioneer in nuclear research, died in 1934 from aplastic anemia, and she never acknowledged that her numerous health problems had been related to the vials of radium that she carried around in her pocket or perhaps to the unshielded x-ray machines she worked with. [4] Today, her diaries and papers still have to be stored in a lead box.

Because there was no consensus on the dangers of radium by the early pioneers (DNA wasn't even understood until the 1950s), there were few safety controls in place when radium became an industrial product. Radium paint workers got sick and died for mysterious reasons, as did workers in processing plants like the Eldorado Mining and Refining facility

in Port Hope. Almost nothing was done to protect workers or properly dispose of the waste product. The wastes were isolated in a dump, but when that became a problem, the dirt was sold as fill to unsuspecting (or unscrupulous) buyers and used at construction sites all over town.

It wasn't until the 1970s that a few citizens of Port Hope started to notice radioactive wastes turning up in various locations. This new awareness was the beginning of bitter social divides that would be familiar to anyone who has followed what has happened in Fukushima prefecture since 2011. The enormous implications of the necessary cleanup forced political and economic powers to downplay or ignore the dangers, and ostracize anyone who dared to threaten real estate values and tarnish the image of the community. The mayor even boasted of what a great role the town had played in the Cold War by refining uranium so that America could beat back the Soviet threat, as if the contamination had been worth it.

There was a minimal recognition of the need to do something about the worst hot spots, to placate critics and relocate residents in the worst danger. Everyone agreed, for example, that something had to be done to clean up a contaminated school, but for the most part the problem was denied in favor of keeping the town's biggest taxpayer and employer satisfied. At the same time, the federal government was not motivated to do anything that would set back the expansion of the nation's nuclear energy program. The Darlington and Pickering nuclear plants were built nearby in this era on the shores of Lake Ontario.

By this time, Eldorado was no longer selling uranium for American nuclear weapons, but it had become a major player in the uranium fuel market. It would provide the fuel for the large fleet of CANDU reactors that Ontario was building, and by the 1980s Eldorado was privatized, turned into Cameco, and was then selling about 80% of its output to the US, where the uranium was enriched for use in light-water reactors. Thus a full acknowledgment of the extent of the problem—the cost of cleanup and the health impacts—would have jeopardized the refinery's role as a major supplier in a growing nuclear energy industry. Eldorado might have seemed like a wealthy giant to outsiders, but the uranium business was perilous and changing rapidly. Just as the public was becoming aware of the extent of the pollution, Eldorado was stuck in long-term contracts that were a bargain for its customers but disastrous in a time of soaring costs.

The situation presented especially difficult obstacles for opponents, because Eldorado was a crown (publicly owned) corporation. One obstacle was secrecy. Since 1942, the operations of Eldorado have been considered as state secrets, and much remains locked up in archives that are yet to be

opened to historians. [5]

The other problem was in the fact that the government had no interest in investigating its own corporation, and because Eldorado was a federal crown corporation, the province of Ontario had no authority to investigate it for environmental crimes. Thus complaints from citizens ran into this dead end.

Similar situations in the United States, such as at the Rocky Flats plutonium pit factory, involved the Department of Energy hiring large defense contractors like Rockwell to manage the plant. This meant there was a possibility the Environmental Protection Agency and the Federal Bureau of Investigations could act if enough public pressure were applied and evidence of crimes became apparent. As much as the American nuclear weapons complex was a monstrous crime against nature, there is at least something redeeming in the fact that the American system of government consisted of various institutions that could sometimes keep the others in check. In the dying days of operations at Rocky Flats in 1989, the EPA and the FBI raided the facility, which was at that time operated by Rockwell under contract for the Department of Energy. The US government essentially raided and prosecuted itself for discharging hazardous pollutants and radioactive material into the environment. [6] Unfortunately, no such checks and balances existed in Canada's nuclear industry. The federal government and its crown corporation had a monolithic grip on the historical records and on decisions about environmental safety and health related to radiation. There was no outside force that had legal authority to prosecute them and force them to divulge information.

There are some further details in *Blind Faith* that stand out in my memory. Some are unique to the Port Hope story while others are typical of stories of other irradiated and poisoned communities.

At one point, a doctor in a nearby town grew alarmed at the number cancer cases that appeared in his patients from Port Hope. He tried to bring the issue to the attention of health authorities, but was slandered and opposed by city officials to a degree that he found alarming. He had foolishly thought that his efforts to speak up for public health would be appreciated. Instead, city officials made a pathetic attempt to sue him for defaming Port Hope, and when that immediately failed, they complained to the provincial medical association. They had thought that this would succeed in getting him stripped of his license to practice, but they were quickly rebuffed by a medical association that found no fault in a doctor expressing his opinion about a serious public health concern. Such was the sophistication of the strategies of the town fathers as they floundered for

ways to preserve the tax base.

Eldorado and the federal government, and even the Workmen's Compensation Board, were equally combative in the lawsuits that former workers eventually managed to bring to court. Lung cancer was the only health issue that was admitted for consideration in the lawsuits, and once it became a legal battle, all ethical considerations went by the wayside. It became a matter of winning at all costs, of admitting to absolutely no wrongdoing no matter how absurd the defendants had to appear. The government lawyers played hardball, abandoning any thought that the government corporation owed anything to the citizens who had lost their health working on a project so essential for national security. The government side was not too ashamed to engage in extreme forms of legalistic hair-splitting. For example, the victims were forced to prove their exposure, but everyone involved knew that the only parties that had the information were the defendants, and Eldorado did its best to conceal it. One victim was denied compensation because the records showed his cumulative exposure was 10.8 "working level months." Expert witnesses were brought in to say, perhaps conveniently, that the threshold of danger to health was 12 "working level months."

Another segment of the book that stands out is that in which Penny Sanger was able to discover that at one time, before the contamination was known by townspeople, the Canadian military had used Port Hope as a training ground for operating in the aftermath of nuclear warfare. The military knew what the citizens of the town didn't know at the time: there were sizzling hot spots of various sizes all over town, so it made for an ideal training ground for soldiers who would have to map radiation levels and move through contaminated terrain after a nuclear attack. After the training exercise, they might have bothered to tell the locals about what they were living with, but the contamination remained a secret until residents started to figure it out for themselves.

As the years of legal struggles and activism dragged on, there were signs that the government was tacitly admitting to the scale of the problem, even if it refused to accept legal responsibility for health damages. The management of Eldorado was routed, and it would eventually be privatized and turned into Cameco. The refinery became the object of pork barrel politics when the federal Liberals returned to power in 1980. They announced that the more dangerous uranium trioxide operation would be relocated to Blind River, a town in the north that had voted Liberal. Eldorado wanted the refinery kept in place close to markets. (I wonder if anyone saw the ironic symbolism of progress in the names; going

from *hope to blind*—a fiction writer couldn't have come up with anything better).

One standout account is that of a widow whose husband, a long-time Eldorado worker, had died of lung cancer at age 50. He had worked at Eldorado for over twenty years, during the era when workplace monitoring and standards were non-existent. Her husband was no longer there to say whether he too was "philosophical" about it and "couldn't be bitter about it" like his wife and his daughter claimed. The widow said that despite her husband's shortened life, they were grateful for the good jobs and university education that the children were able to get. Thanks to Eldorado, they had come up in the world. Thanks to dad so agreeably sacrificing the last thirty years of his life.

Penny Sanger passed no judgment on this thinking, but I find it to be a rather nauseating example of working man's Stockholm syndrome. The victim has internalized the values of the captor, and lost self-esteem and critical thinking skills in the process. The bereaved family slumps over and shrugs pathetically that they "can't be bitter about it." They've internalized the value that children have to go to university to live worthwhile lives, and it's alright if parents have to die young to accomplish this goal. If indeed going to university is so valuable, it's obvious that in Canada there have been other ways to get there.

It seemed to never occur to any of the Port Hope boosters that there were dozens of similar towns in rural Ontario that had found ways to survive without hosting toxic industries. I know a family of Polish immigrants who landed in Port Hope in the 1960s, and they managed to get by without working for Cameco. The children had the sense to leave town after high school when they saw their friends going straight to grim lives working with the yellowcake down at the plant. One of them managed somehow to get a couple of university degrees after he left town.

This lack of imagination among the terminally hopeful applies more widely. Not only do company towns fail to imagine less toxic ways to live, but large nations also fail to imagine new paradigms for energy and economic systems. Perhaps the widow's tale is a metaphor for something bigger.

Port Hope's troubles with its radioactive legacy didn't end with the privatization of the refinery and other varied forms of resolution that came about in the 1980s. A cleanup was done in the 1980s, but twenty years later hot spots were still turning up, and the Canadian Nuclear Safety Commission finally admitted the extent of the problem and committed taxpayer funds to a billion-dollar decontamination project which is

presently underway—an amount that is, ironically, about the same as the budget for the new Chernobyl sarcophagus under construction now. [7][8]

There is further irony in the fact that while the Fukushima and Chernobyl exclusion zones have become the famous global icons of radiation-affected communities, the Port Hope disaster has no place in Canada's national consciousness. [9] There is little public awareness of the history, and the present billion-dollar decontamination project has received scant media attention and no public alarm over the high cost. Meanwhile, opposition parties in Ontario have focused in recent years on stoking citizen outrage over cancelled plans to build gas-powered electric generating stations. That loss was comparatively little, amounting to only a few hundred million dollars. The same cannot be said of the province's plan to spend $20 billion or more to refurbish nuclear power plants to operate them beyond their originally planned expiry dates, but this issue receives less attention than the controversy over the much cheaper controversy over gas-powered plants. When it comes to nuclear energy, none of the major political parties wish to use it to stoke debate with rivals. Nuclear energy has almost completely vanished from political discourse.

Meanwhile, Cameco has continued to practice its philosophy of good corporate citizenship by funneling all its uranium sales through Switzerland in order to avoid Canadian taxes. The company is in an ongoing legal battle with Canada Revenue Agency, while it has warned stockholders it may owe as much as $850 million in back taxes. [10] Note that this amount falls somewhat short of the cost of the decontamination project in Port Hope, but if these taxes were to be collected, the amount would cover most of it.

Notes:

[1] Robert Jacobs, "The Radiation That Makes People Invisible: A Global Hibakusha Perspective," *The Asia Pacific Journal*, 12(31), July 28, 2014, http://apjjf.org/2014/12/31/Robert-Jacobs/4157/article.html.

[2] Penny Sanger, *Blind Faith* (Whitby: McGraw-Hill Ryerson, 1981). At the time of this writing, this book is available on a website dedicated to the history of Port Hope. http://www.porthopehistory.com/blindfaith/blindfaith.htm.

[3] Raveena Aulakh, "Timeline: Radiation at Port Hope," *Toronto Star*, February 1, 2011. This article provides comprehensive detail regarding the extent of radiation contamination in Port Hope, starting in the 1930s up to the date of publication in 2011, https://www.thestar.com/news/gta/2011/02/01/timeline_radiation_at_port_hope.html.

[4] Denise Grady, "A Glow in the Dark, and a Lesson in Scientific Peril," *New York Times*, October 6, 1998, http://www.nytimes.com/1998/10/06/science/a-glow-in-the-dark-and-a-lesson-in-scientific-peril.html.

[5] Peter van Wyck, *Highway of the Atom* (Montreal: McGill-Queen's University Press, 2010). This author describes the obstacles that remain for scholars wishing to access information in the archives about Canada's nuclear past.

[6] Kristen Iversen, *Full Body Burden: Growing Up in the Nuclear Shadow of Rocky Flats* (Danvers: Broadway Books, 2012).

[7] Carola Vyhnak, "Warning Port Hope a toxic time bomb; the only solution? Move," *Toronto Star*, November 9, 2010, https://www.thestar.com/news/gta/2010/11/09/warning_port_hope_a_toxic_time_bomb_the_only_solution_move.html.

[8] Jayme Poisson, "Port Hope set to start 'pushing dirt'," *Toronto Star*, April 18, 2012, https://www.thestar.com/news/gta/2012/04/18/port_hope_set_to_start_pushing_dirt.html.

[9] The situation is the same in numerous places in many countries. For a sample, see the maps in the *Wall Street Journal* series of reports "Waste Lands" (2014, http://projects.wsj.com/waste-lands/). Every country that has mined uranium or developed nuclear weapons and nuclear power has a similar list of contaminated lands.

[10] Geoff Leo, "Ottawa accuses Cameco of multi-million dollar tax dodge," *CBC News*, September 19, 2013, http://www.cbc.ca/news/canada/saskatchewan/ottawa-accuses-cameco-of-multi-million-dollar-tax-dodge-1.1860079.

22. The Manhattan Project in Niagara Falls

Photo taken from the Canadian side of Niagara Falls, looking northeast toward the town of Niagara Falls, New York.

While growing up in Toronto, or visiting home as an adult, I have taken many day trips to Niagara Falls. It is a great place for getting lost in contemplations of geological time and the more recent history of human habitation. One can think about the Ice Age scraping out the Great Lakes, or imagine the first French explorers coming up the river with native guides in the 17th century. Later, slaves escaping from plantations took the Underground Railroad, and crossed the Niagara River to freedom. The N.A.A.C.P, at first called The Niagara Group, began in 1905 in a hotel on the Canadian side because hotels on the American side were segregated. A statue on the American side commemorates Nikola Tesla and the 1895 launch of the first large-scale AC power system in the world. This heralded the industrialization of the area on the American side.

In the early days of electricity, there was a cost advantage in setting up close to the source of power, so American investment in heavy industry flowed into the area. On the Canadian side, the power was sent to points farther away. Thus the difference between Niagara Falls, Ontario and

Niagara Falls, New York: One is Canada's front yard, welcoming visitors from the more populous south. On the Canadian side it is all resorts, wineries, casinos and tended gardens. On the other side is America's backyard industrial zone, a day's drive from the front entrance in New York City.

The Ice Age carved out the Great Lakes, and ten thousand years ago the falls were five kilometers farther north toward Lake Ontario. One can look forward the same length of time and wonder how the falls will be then, and what kind of civilization will exist. On a warm summer day you can meditate like a zen monk to the roar of the water, all that water set in motion by the eternal energy of the sun.

The industrial history of the area can also lead one to these thoughts of eternity because, in another astounding example of "secret" history hiding in plain sight, one of the world's many intractable nuclear waste dumps can be found beside the Niagara River in Lewiston, New York. Hardly anyone is aware of it, even though it stopped being a state secret long ago.

The site is described in Ginger Strand's *Inventing Niagara: Beauty, Power, and Lies* [1] and more recently in Tom Zoellner's *Uranium: War, Energy and the Rock that Shaped the World*. [2], but there is surprisingly little about it to be found in mainstream journalism.

In the summer of 2011, I came across a report by WIVB, a Buffalo, NY television station, about a Niagara Falls road project that had been held up because of high radiation levels discovered by a contractor on the project. [3] The report is somewhat confusing because some of the people quoted seemed to be alarmed by the discovery, while the mayor said, "The project is not a remedial project for removing radioactive materials wherever they're found. It's a road construction project in which radioactive materials that are under the road are being removed, and so there are limits to the bounds of the project."

In other words, everyone involved was supposed to know the contamination existed, and residents with contaminated properties were out of luck because the project focused only on the road. Strangely, the report failed to explain why the area was contaminated. This might be because the issue is so well-known to locals that it need not be mentioned. This is, after all, the home of Love Canal, one of the most famous cases of industrial pollution in the world. The area has been so damaged by industry that health studies of the radiation are inconclusive because the high rates of cancer are also caused by chemicals.

Another explanation for the lack of context in the news report is that the relevant information has just gone down the memory hole, and the

journalists may not know or care to investigate why the road is radioactive. People who worry about the legacy of nuclear waste give a lot of thought to the possibility that people in the future may lose contact with the knowledge of the hazards left by their ancestors. This report is evidence that this change is already underway.

There is some hope to be found in the fact that a year before this TV report, two writers for a Buffalo arts weekly were up to the task of doing some real journalism. Geoff Kelly and Louis Ricciuti made the connection to the debris left by the Manhattan Project, quoted precise figures of the radiation levels—which were astoundingly high—and pointed out that, just as we have seen in Fukushima, the contract went to a local company with no capabilities in radiological cleanup. Their work also covers the stories of Manhattan Project workers who suffered health consequences that went unrecognized and uncompensated. They reported on many instances of contaminated soils being moved about improperly, or lands being sold and developed without proper remediation. [4] (See notes [5] to [9] for additional articles by these writers and by other journalists who have reported on radioactive contamination in Niagara Falls.)

To look deeper into the truth of such matters one can't expect much from local media which is always hesitant to publish news that will tarnish the reputation of the town and damage the economy. One has to turn to a local, concerned expert who has fought the battle and recorded details on a personal blog or journal. James Rauch, author of *Tonawanda Nuclear Site Info (TNSI)*, seems to be just such a local hero. [10] His extensive site gives this summary of the Manhattan Project nuclear waste dumped in the Niagara Falls area:

> [The term] K-65 residues [refers to] the uranium mill tailings resulting from a uniquely concentrated uranium ore discovered before WWII in Katanga province (Shinkolobwe) of the former Belgian Congo, now Democratic Republic of Congo… This ore, dubbed "K-65", had a record 65% uranium content. It also held very high concentrations of thorium and radium, and their decay products, including radon gas, which are retained in the tailings (residues). The very high concentrations of these extremely toxic, long-lived radionuclides present in these wastes prompted the National Academy of Science's National Research Council to categorize them as indistinguishable in hazard from High-Level Waste in its 1995 report. The K-65 ores were refined as a key part of the Manhattan Project during World War II at the Linde Ceramics Plant at Tonawanda, NY, and at the Mallinckrodt

> Chemical Works in St. Louis… The Linde "K-65 residues" were transported to a storage silo built at the federally-appropriated Lake Ontario Ordnance Works site outside of Lewiston, NY, a short distance from Niagara Falls. [10]

The report by the National Academy of Science concluded with the points below (among others not cited here):

1. There is no immediate hazard to the off-site public from the residues in their present configuration.
2. The high-level residues pose a potential long-term risk to the public, given the existing environmental conditions and future unpredictability, if they are left permanently at the NFSS.
3. The proposed actions of replacing the interim cap with a "permanent" cap and of long-term site maintenance and monitoring do not address the potential risks to the public for the long periods of time commensurate with the duration of that potential risk.
4. The present and potential future interactions between the NFSS and disposal sites adjacent to the NFSS, where non-radioactive toxic chemical and landfill wastes are currently disposed, have not been addressed adequately.
5. Current site monitoring activities are inadequate for the determination of long-term site integrity and potential future risks to the public… [11]

What this means is that the Niagara Falls Storage Site (NFSS) poses the same risk that the infamous Hanford facility in Washington inflicts on the Columbia River. Unless a better solution is built, soon or sometime within a century, and for a long time afterward, a plume of radionuclides will flow through the groundwater into Lake Ontario. Nothing is being done about this, and considering present conditions in the USA, it is doubtful that the country will have the competence for the task in 2085.

Sixty kilometers across the lake in my hometown, I suspect very few of Toronto's four million residents know anything about this blowback from Hiroshima and Nagasaki that has been dumped on their Great Lakes border. Ironically, there is a campaign now underway called Stop the Great Lakes Nuclear Dump, but it is focused on opposing the proposal to create a permanent storage site near Lake Huron for low-level waste from Canada's nuclear power plants. The people behind this campaign may not realize the full extent of the problem they have taken up.

Notes

[1] Ginger Strand, *Inventing Niagara: Beauty, Power, and Lies* (Simon and Schuster, 2008).

[2] Tom Zoellner, *Uranium: War, Energy and the Rock that Shaped the World* (Penguin, 2010).

[3] Luke Moretti, "Concerns over Falls Road Fill Radiation," *WIVB Television*, Buffalo, NY. August 31, 2011.

[4] Geoff Kelly and Louis Ricciuti, "The Cult of Nuclearists," *Artvoice*, May 12, 2010, http://artvoice.com/issues/v9n19/cult_of_nuclearists.html.

[5] Geoff Kelly and Louis Ricciuti, "The Bomb that Fell on Niagara," *Artvoice*, September 24, 2008, http://artvoice.com/issues/v7n39/the_sphere.html.

[6] Geoff Kelly and Louis Ricciuti, "Greenpac Reveals Radioactive Waste Issue at Niagara Falls Mill," *Artvoice*, August 1, 2013, http://artvoice.com/issues/v12n31/news_briefs/greenpac_nf_waste.html.

[7] John R. Emshweller and Jeremy Singer-Vine, "A Nuclear Cleanup Effort Leaves Questions Lingering at Scores of Old Sites," *Wall Street Journal*, October 30, 2013, https://www.wsj.com/articles/a-nuclear-cleanup-effort-leaves-questions-lingering-at-scores-of-old-sites-1383088130.

[8] Ralph Blumenthal, "Big Atomic Waste Site Reported Found Near Buffalo," *New York Times*, February 1, 1981, http://www.nytimes.com/1981/02/01/nyregion/big-atom-waste-site-reported-found-near-buffalo.html.

[9] Libbe Halevy, "Nuclear Hotseat 270: Niagara Falls' Dirty Nuke Secrets w/Lou Ricciuti..." *Nuclear Hotseat*, August 24, 2016, http://nuclearhotseat.com/2016/08/24/nuclear-hotseat-270-niagara-falls-dirty-nuke-secrets-wlou-ricuitti-myla-reson-on-diablo-canyon-info-anniversary/.

[10] James Rauch, *Tonawanda Nuclear Site Info*, http://www.westvalleyfactsofwny.org/.

[11] *Safety of the High-Level Uranium Ore Residues at the Niagara Falls Storage Site, Lewiston, New York* (National Academy of Sciences. Commission on Geosciences, Environment and Resources, 1995), https://doi.org/10.17226/9161.

23. Brothers and Sisters in Nuclear Arms: Civilian and Military Veterans of French Nuclear Tests in the Pacific

Memorial for the victims of nuclear testing in Tahiti, French Polynesia

One of my goals in writing about nuclear history has been to share the voices of the people affected by nuclear exploits and accidents. It wasn't supposed to be this way at the start of the age of reason, but science came to be a servant of power, a tool for constructing ignorance, motivated to make human bodies and human suffering invisible. [1] While there is no dispute that the oral histories of holocaust survivors constitute a corroborated, objective truth about what happened in Europe from 1930 to1945, the oral histories of nuclear victims have usually been met with official dismissal, then later sometimes with reluctant partial acknowledgement that came too late.

This chapter consists of a testimony that speaks for the civilian and military personnel who were affected by French nuclear tests in the South Pacific. Similar accounts were recorded and written about by Bruno Barrillot, but no English translations of these books have been made. The testimony told in this chapter does not come from this book but is rather a compilation of blog and social media posts written by Jean-Paul Vimare, a French military veteran who was stationed on the Fangataufa atoll of French

Polynesia in 1974-1975. (Testimony used with permission, translated and edited by Dennis Riches).

When the travel writer Paul Theroux journeyed through the South Pacific in the 1990s he noticed that he was on a trip like no other he had ever experienced. The islands were so small and the distances so vast that he felt like he was journeying across a constellation. [2] This part of the world is a paradise, but one can also feel a profound melancholy on these remote beaches, the last places on earth to be touched by human feet. So imagine how it would be to come here at the age of twenty or so from metropolitan France, sent on a mission like a space traveler in the atomic age to this alien constellation, then you were told to take up your post in a military hospital ten kilometers from ground zero of a series upcoming nuclear bomb tests.

Jean-Paul's writing conveys an everlasting sadness and anger about the assignment he was given in the nuclear testing program, but his words also convey a profound love for his brothers in nuclear arms, all mixed with an ambivalent nostalgia for the defining "adventure" of his youth in a poisoned paradise. He was indulged with great freedom and leisure, but it was all a setup for a devastating disillusionment. How could he not be haunted for the rest of his life by such a surreal experience, especially when the health effects on his comrades, himself and his children slowly revealed themselves over the ensuing decades? [3]

Jean-Paul's story follows the text below—a historical backgrounder given by the publisher on the back cover of *Les Irradiés de la République*.

The Irradiated of the Republic: Testimonies of the French nuclear test victims

Bruno Barrillot, *Les Irradiés de la République: Les victimes des Essais Nucléaires Français Prennent la Parole* (Complex, 2003).

Bruno Barrillot, deceased in 2016, was a prolific author and lead researcher for many years on the effects of nuclear testing in French Polynesia.

From the back cover:

There were 150,000 of them, most of them young men. They were poorly informed, or completely uninformed, about the risks of radioactivity. They were even dis-informed. For example, this is what the personnel were told by military authorities: "Ninety seconds after the explosion, all the debris has fallen back to the surface and there is no danger from radiation." Residual radiation? It is "so low that it constitutes no danger. Do not concern yourself with it." Were they naïve? Respectful of authority? They were proud to participate in this grand adventure which, they were told, would lift France to the level of the great powers. And what memories would they bring back from the Sahara desert or the island paradises of the Pacific? "It was well-known that the bomb was a deadly thing, but when it exploded, I was fascinated by this artificial sunrise." And they were told then, as they are told today, that these bombs were "clean," so what harm could possibly follow? They wouldn't find out, the lucky ones, for another ten, twenty or thirty years, when cancers and other illnesses would affect them. At last, they have spoken, emerging from the silence and the forgetting created by the requirement of military secrecy. At last, they are fighting so that "truth and justice" can be brought to the victims of nuclear tests.

Witness: Jean-Paul Vimare

To the president who gave us the *force de la frappe*;

Lies of State

From your time, Monsieur de Gaulle, to our times, people have struggled to expose the truth of the nuclear tests that were done in Algeria and in the Pacific. In full knowledge of the effects, you sent us to those distant atolls. You made us live in zones of contamination without dosimeters. In your nuclear folly, you sacrificed us, Polynesian workers, personnel of the military and the CEA (*Commissariat à l'énergie atomique*), volunteers or not. Thousands of us are already dead amid a widespread indifference. This is why I created my blog.

It was not a "great opportunity" to have worked for the tests, as some have told me. It's just a fact. I was young and I did know the word "radioactivity," but I didn't know anything about it. I saw four atmospheric tests in 1974, and was present for the first two underground tests in 1975. It

was only many years later that I began to understand what a mistake it all was.

France used us and used Polynesians, who were always called on to do the lowliest tasks. They were like the liquidators of Moruroa, sent out to pick up debris with their bare hands. In my photo they were holding the fish they would eat, fish saturated in Strontium 90.

We forget too often the men who worked at these sites.
I took these photos on the go.
They were there to earn their living,
to support their families.
The word radiation meant nothing to them.
They didn't wonder about it much.
They were among us.
What became of them,
I do not know.
Wherever you are, my friends,
we will not forget you.

Journal Entry

I sometimes went on radiobiological missions in affected zones. I took photos that I developed myself. Outside the "zone of life," it was a ghastly scene. There was barbed wire and debris from Canopus (the hydrogen bomb of 1968) everywhere. Blocks of concrete, twisted metal scrap, heaps of refuse, rusted barrels full of I don't know what. It was barren of vegetation in some places, scattered with vitrified rock and piles of rubbish of all kinds.

How many Polynesian workers and veterans have died prematurely after being irradiated? 10,000? 20,000? In fact, no reliable statistic was ever sought. It would just be embarrassing.

We will never know how to repay you for your lies, your Lies of State.

France lied to us, and it continues to do so. With 193 tests, the French state polluted French Polynesia. France allowed itself to do this with impunity, disdained by all neighboring populations. Besides the tests, it disposed of hundreds of tons of nuclear waste in territorial waters.

A poster created in July 2016 to mark the passing of fifty years since the first nuclear test in French Polynesia

The questions of a veteran of Fangataufa

La Dépêche de Tahiti, August 10, 2012
Jean-Paul Vimare

1. On the Fangataufa atoll, what was the point of all those signs that said "Danger: Risk of Contamination?"
2. What was all the barbed wire for? What protection was it supposed to offer?
3. Why was all the coral debris vitrified?
4. Why did the nuclear testing regime provide us with so many diversions and luxuries? (The food, the leisure activities—it was practically a Club Med.)
5. Why didn't we have dosimeters?
6. Why didn't we have Geiger counters?
7. Why didn't we have potassium iodide pills at the infirmary during the nuclear tests?
8. At the hospitals on the site, why were there no instructions specific to radiological accidents to prepare us in case of trouble during the tests?
9. Why were we not trained and equipped in how to safely take samples

of radioactive water? After the Achilles test, wearing only shorts and tongs, I had to walk out in a state of dread on a cracked rock slab to take a sample.
10. Why are there so many blocks of pulverized concrete and piles of old bunkers?
11. Why has vegetation not re-grown in certain areas?
12. Why was I hospitalized by a *civilian* doctor in a *military* hospital in Lorient?
13. Why was I sterile for so many years?
14. Why, in certain military files, were afflictions suffered in Moruroa and Fangataufa (the bomb test sites) registered as having originated in Papeete, 1,200 kilometers away?
15. Why were these tests "without danger" not conducted in France, or since they actually were so dangerous, not in the near-Antarctic islands of Kerguelen, as was proposed at one time?
16. Why are the archives on the Polynesian tests not declassified? Is the truth too unsettling?
17. Why are the people like me, who were in the line of fire, dying prematurely?

That's enough questions. My personal photos show very well that we were living in a nuclear wasteland. Now it is a certainty that Moruroa will collapse, like an aging, cracking block of Gruyère cheese, and no one will be able to say that we were not warned by certain scientists. It is a fragile crown of coral, an eggshell. The Fangataufa atoll has become one of the largest nuclear waste sites in the global history of nuclear weapons tests, completely beyond the reach of the law.

Journal Entry
Bienvenue au Paradis: Health Services in a Sacrifice Zone

I arrived in Fangataufa on a sunny afternoon. It was here that I was coming to live with my companions in misfortune. I had already learned a bit about this atoll situated 45 kilometers from Moruroa, where I had worked at the *Hôpital des Sites*...

We got used to such sights as mushroom clouds. It is impossible to describe or inscribe such events. Fangataufa could be called life in the great outdoors, tropical island outpost, abandoned and dismantled in 1976.

Fangataufa is one of the most radioactive places on earth. Following its closure, it served as a storage site for wastes coming from Moruroa,

which had also been destroyed. These atolls are considered to be gone, lost forever to the long night of time. What a shame. They were beautiful, even in the chaotic, highly radioactive conditions left by Canopus in 1968—a 2.6 megaton hydrogen bomb—that's 2.6 million tons of TNT exploded just 1.5 kilometers from the so-called "zone of life." In contrast, the 15 kiloton bomb in Hiroshima (15,000 tons of TNT) killed 75,000 people.

The health services of the nuclear sites served all branches of the military. The hospital was quite important. We could handle medical and surgical emergencies immediately, but the services were completely inadequate in case of a large disaster, especially a nuclear accident. In any case, there were no special preparations before a detonation. That was in 1974. I don't know what it was like after that.

The life of an orderly at the infirmary in Fangataufa was easy, pampered in fact. We did what we wanted at our island base. Good wine, great food, little discipline. I would understand only much later the reason for this largesse. It looked like paradise, but we were walking in shit.

The inhabitants of this base, which functioned for only a short time (1970 to 1976), were called "zonards" or "Fangatiens." It is still not well understood that this place was completely contaminated. One can only assume it was, though, because it has never been confirmed officially. But after four atmospheric tests and ten underground tests in such a small place, could there be any doubt? I have my suspicions, with this personal account of the place, that the leaders of our fine country took us for fools, as they did our Polynesian friends. It was a great achievement for France. It is the only nation to have successfully erased two atolls, Moruroa and Fangataufa, from the planet. That's the *force de la frappe*.

The atoll is like the inverse of a natural landscape. One could call it the kingdom of flies and concrete. One of my photos is particularly meaningful. In the foreground, we can see the fly-repellent barbed wire, as well as a sign warning about the contaminated zone. I took the liberty of removing some of the barbed wire during one of my missions, as I noticed it was failing to serve its purpose. There were just as many flies on one side of it as on the other. But the sign stayed in place. I joke about this photo because it is the only way to deal with it. I took another photo that indicates how close the infirmary was to the danger zone.

Another was taken from the place on the other side of the *Zone Empereur*, a lunar landscape, razed, totally vitrified in some places. I know there were installations made of metal there. They melted under the power of the shot, and the rest was thrown into the ocean. I shudder to think of the fearless guys who cleaned up in these places.

One day it was time to leave my best mates. Departures were always very moving. Adieu, Fangataufa, once again you are left to the birds, and it is better that way.

Further reading on the consequences of the era of nuclear testing:

Chris Busby, "Bomb test veterans' grandchildren suffer health impacts," *The Ecologist*, October 16, 2014, http://www.theecologist.org/News/news_analysis/2595620/bomb_test_veterans_grandchildren_suffer_health_impacts.html.

Paul Dicken (director), *Children of the Bomb*. The Northern Eye (United Kingdom) documentary about Christmas Island Nuclear test Veterans and the genetic damage inflicted on their descendants, 1990 (date unconfirmed), https://www.youtube.com/watch?v=jRJLkSjcIAU&feature=share.

Dr. Boris Gusev, Semipalatinsk Institute of Radiation Medicine, Kazakhstan, speaking in *After the Apocalypse*, (46:18~), Tigerlily Films, May 2011:
"Over the last 15 years we have thoroughly analyzed all the material in the archives. We have made our conclusions and published our research. And at the same time we have continued our planned research on the population. Now a huge group has appeared, of 250,000 to 270,000 people. These are the children of parents who have been irradiated. We thought that everything would go smoothly, that chromosomal damage and genetic effects would be confined to only the generation of people who were irradiated, and they could not be inherited by future generations. But it turned out this was wrong."

24. Commucapitalism: The Sovietization of Capitalism and the Merger of American and Soviet Ideals in Cold War Plutopia

After the 2016 American election results, the mainstream media networks in the United States stopped ignoring the presence of international broadcaster *Russia Today*. The network had been operating for several years, but its audience had been considered too insignificant to worry about. However, this changed after Hillary Clinton lost the presidential election to Donald Trump and the Democratic Party in general suffered humiliating defeats in both houses of Congress and in state governments across the nation. Suddenly, *Russia Today* and other minor media platforms on cable television and YouTube were being accused of acting as propaganda tools with an agenda to undermine American democracy.

These denunciations were obviously scapegoating the Democratic and Republican establishment's failures. Unfortunately for these American critics, *Russia Today*, and similar media outlets based in other nations, are only following in the path established by the likes of *BBC*, *CNN* and *Voice of America* as international broadcasters. Under American guidance, Russia became a capitalist country in the 1990s, and so naturally its corporations claimed their right to compete in the international sphere. *Russia Today* was one such organization that competed for a place in the international market for news services. If it is a "propaganda outlet" it is such to the same degree that *CNN* and *BBC* stay within the bounds of acceptable discourse in the corporate and governmental structures of the United States and Britain.

An additional misfortune for these mainstream broadcasters is that they have become increasingly incapable of critical analysis of the nations they represent. A growing sector of the public regards them the way that Eastern Europeans and Soviets regarded state media in the early 1980s. They simply don't reflect the reality and concerns of millions of people

they supposedly serve. *Russia Today* saw that there was an audience that was keen to view intelligent, critical analysis of the issues of the day, and thus they have succeeded in a way that has drawn these accusations of "propagandizing." However, for anyone old enough to remember what network news broadcasting used to be like in Western nations, most of *Russia Today*'s programs are no different than what used to appear on *60 Minutes* or reports and documentaries aired on *PBS*, the publicly funded television network in the United States.

One example of *Russia Today*'s successful shows is *The Keiser Report*, a financial news and commentary show hosted by the American couple Max Keiser and Stacy Herbert. The show is primarily about financial news, but they always manage to make the connections to subjects such as politics, military conflict, and environmental threats.

In a memorable episode broadcast in February 2015, [1] Max interviewed anthropologist David Graeber about his new book *The Utopia of Rules: On Technology, Stupidity and the Secret Joys of Bureaucracy*. [2] He discussed the way government and corporate entities have merged into a seamless bureaucracy in which it is impossible to make distinctions between the two. For example, corporations might apologize to their customers for the "red tape" of government regulation imposed on them, but the regulations are written by corporate lobbyists.

Graeber explained, "At this point the free market… and the government are so completely fused together that you can't even tell them apart." A prime example, one he discussed elsewhere in an interview in *Salon.com*, was the American health insurance reform known as Obamacare. He stated, "You can't tell if it's public or private; and it's partly government regulated profit-taking, forcing you into a profit-making enterprise [whether you like it] or not. And it creates completely unnecessarily complicated layers of bureaucracy." [3]

During the Keiser Report interview, Max Keiser commented, "It sounds like the Soviet Union back in the day when people were saying this is completely choked with this bureaucracy, this communism. There's no entrepreneurism. There's no growth." Max Keiser has also noted numerous times on his show that the actions of institutions like the Federal Reserve and the European Central Bank have turned capitalism into a command economy. Decisions about interest rates and expanding the money supply benefit a select *nomenklatura* in the financial sector, but do little to solve underlying problems in the real economy or increase the prosperity of the lower 99%.

David Graeber agreed with Max's statements about bureaucratization,

adding, "I would call it the Sovietization of capitalism." By this he meant that there was a utopian ideal in socialism, and whenever it failed, the system punished people who couldn't live up to the ideal by stifling them with rules and bureaucracy. In much the same way, the utopian ideal of capitalism produces the same effect. He cites the example of banks that now need fees and penalties imposed on their depositors, not profitable lending, in order to make a profit. This is no different than a government charging a fee for a license plate. He drove home the point by saying further, "Someone figured out that they're printing enough [euros] to give every individual in Europe 763 euros a month for a year. Well, why not give everybody in Europe 763 euros a month for a year? ... How could that not be a better stimulus for the economy?" The answer was that if they adopted such a bottom up solution, there would be no fees to collect for the mandarins at the top.

In the Salon interview he said:

> There was this liberal fantasy in the 19th century that government would dissolve away and be replaced by contractual market relationships; that government itself is just a feudal holdover that would eventually wither away. In fact, exactly the opposite happened. [Government has] kept growing and growing with more and more bureaucrats. The more free-market we get, the more bureaucrats we end up with, too… It always goes up. It went up under Reagan.

This ironic Sovietization of capitalism, has a parallel, and perhaps a cause, in the Cold War factory towns where the two superpowers built their atomic weapons. It turns out there is an ironic extra reason why this new social structure is sometimes called a plutocracy. In *Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters*, [4] Kate Brown highlighted the remarkable hybridization of the American and Soviet systems that occurred in these towns, which were an entirely new form of social organization created out of the existential dread of nuclear war. The differences between the ideals of the two systems can be seen in Table 1:

Table 1: Ideals of American Capitalism and Soviet Socialism

		American Capitalism	Soviet Socialism
1	Property	private	*state-owned*
2	Individual Outcomes	high inequality	*low inequality*
3	Economy	free market	*directed by the state*
4	Speech	free	*state-controlled*
5	Individual Motivation	enlightened self-interest	*enlightened self-sacrifice*
6	Value of the Individual	primary	*secondary to the collective*

Table 2: The actual values adopted in both of the superpowers' plutonium cities: Richland, USA and Ozersk, USSR

		Ozersk-Richland Hybrid Economic and Social Order
1	Property	*state-owned*
2	Individual Outcomes	unequal
3	Economy	*directed by the state, licensed monopolies*
4	Speech	*state-controlled*
5	Individual Motivation	enlightened self-interest
6	Value of the Individual	*secondary to the collective*

About Table 2

1. Property

The city of Richland, Washington emerged out of the desert for no reason other than the production of plutonium. There was a need to have high quality housing built fast for an elite of scientists and engineers, and this was a factor in the rise to prefab housing and modern suburbia. However, the difference in Richland was that private home ownership was banned. The federal government had to give security clearance to every resident, and monitor their health for radioactive contamination. This would have been impossible if employees of the plutonium factory had been allowed to buy their own homes and sell them on the market to someone who lacked security clearance and an approved reason to be in Richland. Score a point for the Soviet way of life.

2. Individual Outcomes

For the first few years of the Cold War, the USSR was in a panicked rush to catch up to America in the nuclear arms race. It relied on soldiers and prison labor to build a plutonium factory, but it soon learned what the Americans had learned during the Manhattan Project. The best way to maintain security, quality of the product, and loyalty was to lavish scientis ts, engineers, tradesmen and even the rank and file workers with a quality of life they couldn't get elsewhere. In both atomic cities, the perks were so good that many refused to leave even when they knew they were being contaminated with radionuclides. Score a point for good old American inequality of outcomes.

3. Economy

During the Cold War, American conservatism developed its rhetoric lauding free enterprise and deriding government interference, but this movement thrived during the time of greatest state intervention in the economy. Of course, this was the time when great corporations like Boeing, Dupont, and Rockwell emerged, but these existed only because of the massive government programs to build nuclear weapons and missiles, which in turn necessitated the interstate highway system (for evacuation of big cities) and the Internet (to maintain communications after a nuclear attack). Score a point for Soviet-style state management of the economy.

4. Speech

Richland had a newspaper, but it was heavily censored and never ran stories that helped citizens question how the Hanford reactors were being operated. Score another point for the Soviet way.

5. Individual Motivation

We could say that the people who built the atom bombs were making a sacrifice for their country, but both nations had to shower their workers with extra privileges that they couldn't get outside of their gilded cages. There was an element of sacrifice in the work, but success depended on knighting the workers with elite status. Score a point for the American way of better outcomes for all through enlightened self-interest.

6. Value of the Individual

Both plutonium cities left a legacy of the worst environmental contamination known to mankind. There were horrific accidents, deliberate massive releases of radiation, and reckless contamination of workers and residents in surrounding communities. The cleanup is an unresolved nightmare that will last until the crack of doom. In both places it was implicitly understood by management that this was war, and in this war lives would be sacrificed for the "greater good." The ideals of the Enlightenment and of the American constitution say that the protection of individual rights must be the basis of the state's legitimacy, but in the atomic cities of the USA and the USSR, it was individual sacrifice for the state that was required. Score 1 point again for the values of the USSR that emphasized the honor in sacrificing for the motherland.

Cold War Scorecard: America 2, Soviets 4

Though it is common wisdom to say the America won the Cold War, it ain't over 'till it's over. And how will we know when it's over? The transformation of both nations in the early Cold War suggests that the two systems converged in ways that were seldom acknowledged. In fact, if we want to keep score by the categories of Table 2, the Soviet system had a clear victory. Perhaps this is why now, a quarter century after the fall of the Berlin Wall, academics are taking note of a phenomenon called the Sovietization of capitalism.

In an interview on *Talking Stick TV,* Kate Brown stated about her book *Plutopia*:

> I think [the situation of these plutonium factory towns] epitomizes a lot of shifts we find in American society in the post-war years. So making these kinds of exchange, of... rights over one's body, and civil rights and freedoms for consumer rights and financial security, and national security made sense to a lot of Americans, not just people in Richland… I hope that people will look at this tandem history [of Ozersk and Richland] and see that there are some striking similarities between how easy it was to deny radioactive contamination and public health effects in both the socialist Soviet Union and in American democracy, and that despite the vast differences in these two countries and these two political systems, there was something overarching about the nuclear umbrella that created very similar kinds of cultures and social systems, and systems of knowledge. We need to take a really close look at how the demands of nuclear technology and nuclear secrecy and security create systems and communities that are extremely undemocratic and hierarchical, and also create these plutonium disasters, the full impact of which we've yet to really fully digest. [5]

The mixing of socialism and capitalism that I have described above is actually an old theory about east-west relations that was referred to as convergence theory. John Feffer discussed it in an article in *Truthout*, saying "...economist John Kenneth Galbraith... predicted that the United States and the Soviet Union would converge at some point in the future with the market tempered by planning and planning invigorated by the market." Instead, this best-of-both-worlds blend didn't come to pass, and he asks

whether it is now the worst of both that exists in China, Russia, the United States:

> The convergence theorists imagined that the better aspects of capitalism and communism would emerge from the Darwinian competition of the Cold War and that the result would be a more adaptable and humane hybrid. It was a typically Panglossian error. Instead of the best of all possible worlds, the international community now faces an unholy trinity of authoritarian politics, cutthroat economics, and Big Brother surveillance. Even though we might all be eating off IKEA tableware, listening to Spotify, and reading the latest *Girl With the Dragon Tattoo* knock-off, we are not living in a giant Sweden. Our world is converging in a far more dystopian way. After two successive conservative governments and with a surging far-right party pounding its anti-immigrant drumbeat, even Sweden seems to be heading in the same dismal direction. [6]

Notes

[1] "The Keiser Report," Episode 723, *Russia Today*, February 24, 2015, http://rt.com/shows/keiser-report/235067-episode-723-max-keiser/.

[2] David Graeber, *The Utopia of Rules: On Technology, Stupidity and the Secret Joys of Bureaucracy* (Melville House, 2015).

[3] Elias Isquith, "David Graeber explains the life-sapping reality of bureaucratic life," *Salon*, March 5, 2015, http://www.salon.com/2015/03/05/i_found_myself_turning_into_an_idiot_david_graeber_explains_the_life_sapping_reality_of_bureaucratic_life/.

[4] Kate Brown, *Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters* (Oxford University Press, 2013).

[5] Mike McCormick (Interviewer), "Kate Brown—The Great Soviet and American Plutonium Disasters," *Talking Stick TV*, January 18, 2014, https://youtu.be/O6Ys8ii6r_M.

[6] John Feffer, "The Worst of All Possible Worlds: Did Market Leninism Win the Cold War?" *Truthout*, May 26, 2015, http://www.truth-out.org/opinion/item/30974-the-worst-of-all-possible-worlds-did-market-leninism-win-the-cold-war.

25. Bernie Sanders' No-Nuclear Option

While Bernie Sanders' campaign for the 2016 Democratic presidential nomination made some Americans *audacious* enough to *hope* for progressive *change*, there was a conspicuous absence in his platform of any intention to revise foreign policy and connect it to the concern with domestic issues that has dominated his platform. Sanders never did tell the American public where he stands on a number of fundamental foreign policy questions, issues related not only to the use of the military but also to human rights and independence movements. It may not be readily apparent to the American public, but domestic problems are all deeply connected to the US role on the foreign stage over the last seventy years.

The weakness in Sanders' campaign was evident when compared to one that was similar in many respects. In 1968, Senator Eugene McCarthy launched a campaign for the Democratic Party nomination, and like Sanders, he surprised the nation when his campaign turned into an insurgency that startled the presumptive hares in the race into panic mode. Robert Kennedy was assassinated during the primary race, and President Johnson decided not to run for re-election when he noticed the level of opposition to his Vietnam policy. At the convention, the favorite of the party leadership, Vice President Hubert Humphrey, faced a serious challenge from the dark horse candidate McCarthy, who had risen from obscurity in a matter of months.

During the convention in Chicago, protesters on the streets were met with the violent suppression of a police force under the command of Democratic mayor Richard Daley. Inside the convention, the party leadership was focused on the need to nominate a moderate who could beat the Republican candidate, Richard Nixon, in the November election. The party brass feared that McCarthy wouldn't stand a chance running against Nixon, and they did everything possible to make sure the nomination would go to Humphrey, who lost to Nixon anyway. McCarthy alleged that the nomination had been rigged by party bosses, and in fact there was a precedent for this much earlier in the 1944 convention when Harry Truman ousted the current vice president, the New Deal progressive Henry Wallace,

with the backing of the party establishment. That fateful manipulation is seen by some historians as the change that set America on its ruinous path of Cold War confrontation with the Soviet Union. [1]

In his article "The Ghost of Liberal Democrats Past," Lance Selfa wrote a more thorough account of McCarthy's campaign, as well as the stories of other leftist Democratic candidates whose platforms disappeared into the mainstream of the party:

> … it is worth noting that much of what is being said on the left today about Bernie Sanders' presidential campaign was said about [Jesse] Jackson's campaigns in the 1980s… consider how the 2000s campaigns of former Ohio Rep. Dennis Kucinich disappointed their left supporters. Both Jackson and Kucinich ultimately delivered supporters to the more conservative Democrats against whom they had mounted their challenges in the first place. They did this so effectively and seamlessly that it must be said their campaigns aimed to do this from the start. Candidates like Jackson or Kucinich occasionally flirted with the rhetoric of breaking with the Democrats, but their clear commitment in practice was to bring people disenchanted with the party into the Democratic orbit. And meanwhile, Sanders, for his part, won't even use the rhetoric—he has ruled out running outside the Democratic Party… For those who want to build a stronger left in the U.S., there is no substitute for the work of… organizing a political alternative independent of the Democratic Party. [2]

The starkest difference between McCarthy and Sanders is that the campaign of the former was almost entirely based on a single foreign policy issue: withdrawal from Vietnam. Young men from all social strata were eligible for the draft, even though the lower socio-economic levels and African-Americans were much more likely to end up in boots on the ground in Vietnam. The draft meant that every family had a stake in the game, so an anti-war candidate like McCarthy gathered enough support to be a serious contender for the Democratic nomination. This may be why the draft was never reinstated. One might think that conservatives would prefer to have compulsory military service, but a nation with a certain degree of democratic control can't be at constant war because draftees, and the people who care about them, vote against wars that have no obvious connection to self-defense.

The focus on foreign policy in 1968 was possible also because domestic issues were, relative to today, not as much of a concern. Racial

inequality was, legitimately, the main domestic problem, but in other respects it was a comparative golden era. If there were economic worries, they were coming from corporations that were beginning to fear the impact of the war on profits.

Many critics of today's Republicans point out that, on domestic policies, Nixon would today seem quite liberal, even to the left of Bill Clinton in the 1990s. In 1968, the public education system was functioning, unemployment was low, and government was spending big on NASA and other research programs. It was before the oil shock and inflation of the 1970s, and the neoliberal assault on the domestic and global economy (the promotion of privatization, fiscal austerity, deregulation, free trade, and reduced government spending) was yet to begin. With the basic needs of the public largely met, a greater segment of the electorate had the luxury of not being pre-occupied with personal economic survival. They could focus on the big issues that stood a chance of fixing systemic problems: nuclear disarmament, détente with the Soviet Union, and curtailing foreign military ventures.

By 1990, the Cold War had apparently ended, but there are still about 16,000 nuclear weapons in the world today. One could ask if eliminating the redundant capacity for overkill, while leaving thousands of nuclear warheads intact and calling this "the end of the Cold War," was merely a ploy to divert public attention from the excessive military expenditures that were set to continue.

Since the collapse of the USSR, America has maintained its control of the world, as the sole remaining superpower, through military and economic means—although this era may be ending now, as China, Russia, India, and Brazil (known as the BRIC countries) are engaging in several forms of economic integration outside the American sphere of influence. The impact that America's imperial era still has on domestic politics should be obvious, because foreign policy requires the labor of the domestic population to be organized according to its demands. It is a policy which, in addition to being a method of controlling the world, is also a way to feed and house the population by directing the labor force into military service, national security agencies, and weapons production. In a sense, since WWII America's foreign policy has comprised a large part of the social safety net, the sector in which one needed a job if one was to have health insurance, job security, a good salary, and access to decent housing and schools. As long as this policy succeeded as an economic stimulus for the private sector and in delivering social benefits to a large segment of the population, there was little political will to establish other sectors of the economy and other

forms of social security.

In recent decades, the growing number of people living outside of this security blanket has created great inequality and social disruption, a trend which has turned the security apparatus against the domestic population—a downward spiral in which a security-obsessed nation houses an increasing share of the population in prisons. A cynic might also say that the increase in domestic economic insecurity was created deliberately, or welcomed, as a way of deflecting attention from America's role in the world so that the problem of 1968 would never be repeated. Back then, when the domestic population wasn't kept in such a precarious state, people started paying too much attention to foreign policy.

A case in point that illustrates the domestic dependence on the security state is New Mexico. A recent report in *Reveal* (by the Center for Investigative Reporting) stated:

> For New Mexico, the second-poorest state after Mississippi, nuclear weapons and military bases are undeniably a lifeblood. Out of the $27.5 billion in federal dollars poured into the state in 2013, according to a Pew Charitable Trusts study, about $5 billion went to Los Alamos, Sandia and the Waste Isolation Pilot Plant, the nuclear weapons waste facility east of Carlsbad, where accidents last year exposed dozens of workers to radiation. [3]

The article goes on to describe in depressing detail just how deeply the military complex is embedded in American life. It is easy to denounce all this as rooted in corporate greed and the corrupting influence of lobbyists, but the problem is all the more implacable because no one wants to see the jobs disappear. No one wants to see Albuquerque "breaking bad," or breaking worse than it has already since the defense cutbacks of the 1990s.

This is why not even the progressive hero of 2016, Bernie Sanders, was talking about foreign policy or discussing an alternative to the military economy. He had some great ideas for reform, but had little to say about how to achieve it. Higher taxes on the rich and corporations are a good start, but what happens after that?

Some commentary in the alternative media noted Sanders' silence on foreign policy, but the problem went beyond this one issue. The US has failed to support Palestine, Tibet, West Papua, and a long list of other human rights tragedies where the US could do good just by withdrawing economic ties and/or military support from countries such as Israel, China, and Indonesia. Doing the right thing would require America to reduce (or

share) its role as as leader of the global order, or at least use its influence to correct glaring injustices that it now supports in many of its allies. But doing his would also entail a re-imagining of the domestic economy. One might add that a principled stance on independence struggles elsewhere would require America to face up to what is owed to Native Americans, or to the fact that the Kingdom of Hawaii has been illegally occupied since 1898 (unilaterally annexed by US Congress, no treaty of surrender exists).

We must consider the mind-bending questions about the Kafkaesque absurdities that arise from the quest for security with a stockpile of thousands of aging, operationally deployed but untestable nuclear warheads. [4] The defense labs in New Mexico are set to receive hundreds of billions of dollars for the modernization of the nuclear arsenal, but because of international agreements and belated environmental awareness, these weapons can never be tested. They just have to be maintained so that they are certain to function if they are needed. Nuclear scientists say it is like maintaining a car in perfect condition but never being able to turn the key. [5] If it ever were necessary to use the device, it would mean a global nuclear exchange had begun, which would negate the purpose of having the weapons in the first place.

Thus if it is a matter of operating a trillion-dollar economic enterprise on something that can never be used, we can ask whether this is really a massive fetish or virtual-reality game that only creates the illusion that meaningful work is being done. Since the nuclear tests actually are run only on computers (or as sub-critical tests), it seems that the enterprise really is virtual, and nothing but a make-work program for technocrats. They could just as well be paid their salaries for playing video games for eight hours a day before they return to their suburban homes in Albuquerque. This virtualization is perhaps an ironic correlate of the financial system, which also no longer has a connection to the production of tangible goods that people need. However, while a few banks could easily be eliminated, the bombs overseen by the nuclear labs are real, as is the chance of an accidental launch. Furthermore, the accumulated nuclear waste from both the military and "peaceful" uses of the atom poses its own existential threats.

Bernie Sanders says he will confront climate change, but he seems unprepared to tell Americans the really bad news that makes it much harder to imagine that a new New Deal could repeat the gains in prosperity of the mid-20th century. It is one thing to admit that global warming is going to be disruptive, but there are no politicians willing to suggest that life might be harder in a less energy-intensive society, requiring everyone to have less but

share more. No one wants to talk about the other catastrophes developing while we are preoccupied with the climate. For example, if sea levels rise, a great deal of social disruption will ensue, and it is doubtful that there will always be competent authorities watching over spent nuclear fuel during the next century. Seventy years into the nuclear era, there is still no final disposal site for all the nuclear waste accumulated from the military and civilian nuclear programs, yet this issue is completely off the radar during election campaigns. Political commentators sometimes refer metaphorically to issues that are "too radioactive" to talk about, but in this case the meaning is quite literal.

Once we understand that the United States is capable of creating money and directing its human resources toward the useless game of nuclear arsenal maintenance and nuclear waste generation, it is easier to start asking why such deadly technologies are the only ones considered to have economic value. Could there be another endeavor for Americans to devote their labor to? What does America want to be when it grows up? Eventually, empires lose their steam and become ordinary countries. Rome became Italy, which in its modern constitution "repudiates war as an instrument offending the liberty of the peoples and as a means for settling international disputes." Empires transform themselves or are transformed by outside forces.

After WWII, the US occupation forced post-imperial Japan to accept the famous Article 9 of its new made-in-America constitution, which forced it, like Italy, to renounce foreign military deployments. Conservative elements in Japan have fought against it ever since, and the present Abe government succeeded in 2015 in "re-interpreting" Article 9 so that Japan could join allies under attack, in vague ways yet to be defined. [6]

Article 9 didn't magically make Japan the peace-loving nation that it claims to be. It is a vassal state, dotted with American military bases and protected by the American nuclear umbrella. It has rarely opposed American foreign policy or American sanctions imposed on "uncooperative" nations, and it has profited from American wars in Korea and Vietnam. During Gulf War I, America asked for military support from Japan, but it was impossible to get because of the American-imposed constitution. Instead, Japan agreed to write a check to the American treasury for $13 billion. [7] When America handed West Papua over to Indonesia in 1967, Japanese corporations got a share of the natural resources. [8] The same sorts of benefits went to other American allies who have passively stood by while the world got carved up. Being a "peace-loving" nation should entail more than just staying out of the fight while sharing in the spoils and being rewarded for cooperation.

Friends don't let friends drive drunk on imperial ventures, but then again, nations that resisted America's plans have always paid a heavy price.

Article 9 of the Japanese constitution, flawed though it is because of the circumstances of its creation, is at least a beacon of hope, embraced by the majority of a nation that had aspirations for peace after a ruinous quest for empire. America might be able to start solving its domestic problems if it started downsizing its military, like Japan, to what is only needed for true self-defense. Some might say this is ludicrous while Russia and China supposedly pose an existential threat, but parity with these other powers would mean only having the same number of foreign military bases as them—that is, almost none. If America really is destined to lead the world, it could unilaterally start to cut its nuclear arsenal and set the example for other nuclear powers to follow. If such a transformation happened, the Department of Defense could finally be concerned with defense rather than the projection of power to all corners of the globe, and there would be no need for the Orwellian-named Department of Homeland Security.

The economic collapse of Greece has made many people realize that the financial assault on the country is just another kind of warfare, yet this shouldn't come as a surprise. In fact, it appears that markets and warfare were always two sides of the same coin. The chartalist theory of money claims that money came into existence because it was a necessity for military expansion. [9] In order to send armies over long distances, kings needed a way to incentivize local people along the marching route to resupply the soldiers. Kings made coins with their likenesses on them and gave them to soldiers, who then exchanged them for food and supplies. For the locals, the coin was a promise by the king to pay the bearer of the coin at a later time in goods of value. At the same time, the kings imposed taxes, and people were now doubly incentivized to earn coins—both for personal profit and to pay taxes to the king. This method succeeded in creating markets, expanding frontiers, projecting power, and encouraging previously independent communities to willingly submit to this new order, because individuals saw in it a possibility of enriching themselves. I don't see how any modern-day wage-earner, soldier, citizen, or consumer could deny that the situation is much the same in the modern plutonium and carbon-based economy.

When people now say that we are at the end of capitalism, that we need a new system that is yet to be invented, perhaps they are asking for a new kind of currency, a system for sharing resources, that is de-coupled from the endless creation of weaponry and military expansion. This is the sort of fundamental issue that Bernie Sanders and other "radical" candidates

seem determined to avoid. Instead they offer simple slogans about "getting big money out of politics" and giving Americans "a living wage" without mentioning the transformation of national values that would be needed to achieve such goals. Perhaps they think it is essential to dwell on fixing campaign finance reform first before actually talking about the policies that could arise from a government free of the influence of big money—a government that apparently exists out there somewhere over the rainbow.

Americans should be wise to this game by now after the "hope and change" rhetoric they lived through in Barack Obama's 2008 presidential campaign, as well as all previous attempts by Democratic Party outliers to change the system from within. The two-party system in the US is run by an oligarchy, and with one party clearly no longer competent enough to run a small-town school board, its remaining purpose is to be a cast of useful idiots who can keep the center from moving to the left. Hilary Clinton adopted some of Bernie Sanders' rhetoric, but in the latter months of her campaign she pointed to the Republican clown—Donald Trump—in order to scare the electorate into voting for the only "realistic" and "pragmatic" choice. I'll leave the last word to Bruce Gagnon, who came to similar conclusions after attending a Sanders rally in early July 2015:

> My bullshit meter went off the charts last night. I've seen this song and dance before. But it doesn't really matter what I think because those 9,000 mostly liberal democrats left the Civic Center last night thinking they have found another shining knight on a white horse to lead them to victory. But victory won't be within their grasp unless we can talk about the US imperial war project that is draining our nation, killing people all over the world, and helping to increase climate change as the Pentagon has the largest carbon bootprint on the planet. Sure taxes on Wall Street speculation will help some but until we get our hands on the Pentagon's pot of gold nothing really changes around here. [10]

Notes

[1] Oliver Stone and Peter Kuznick, *The Untold History of the United States*, (London: Edbury Press, 2013), chapters 4 and 5.

[2] Lance Selfa, "The Ghost of Liberal Democrats Past," *Socialistworker.org*, May 11, 2015, http://socialistworker.org/2015/05/11/the-ghost-of-liberal-democrats-past.

[3] Len Ackland and Burt Hubbard, "Obama pledged to reduce nuclear arsenal, then came this weapon," *Reveal*, the website for the Center for Investigative Reporting, July 14, 2015, https://www.revealnews.org/article/new-mexico-thrives-on-nuclear-bomb-despite-us-pledge-to-reduce-arsenal/.

[4] Arshad Mohammed and Phil Stewart, "U.S. says nuclear arsenal includes 5,113 warheads," *Reuters*, May 3, 2010, http://www.reuters.com/article/us-nuclear-treaty-usa-arsenal-idUSTRE64251X20100503.

[5] Joseph Masco, Nuclear Borderlands: *The Manhattan Project in Post-Cold War New Mexico* (Princeton University Press, 2006), 252.

[6] Gwynne Dyer, "Gutting Japan's Article 9," the *Georgia Straight*, July 22, 2015, http://www.straight.com/news/494706/gwynne-dyer-gutting-japans-article-9.

[7] Hiroshi Nakanishi, "The Gulf War and Japanese Diplomacy," *Nippon.com*, December 6, 2011, http://www.nippon.com/en/features/c00202/.

[8] John Pilger, "Secret war against defenceless West Papua," *johnpilger.com*, March 9, 2006, http://johnpilger.com/articles/secret-war-against-defenceless-west-papua.

[9] David Graeber, *Debt: The First 5,000 Years* (Brooklyn: Melville House, 2011), 46-52.

[10] Bruce Gagnon, "Our Night with Bernie," *Dandelion Salad* blog, July 7, 2015, https://dandelionsalad.wordpress.com/2015/07/08/chris-hedges-bernie-sanders-has-made-no-mention-of-the-military-part-3/.

26. Pugwash 2015: Remember Your Humanity, but Forget about a Nuclear Free World for Now

"The person who prays for peace must not hide even a needle, for a person who possesses weapons is not qualified to pray for peace."
-Takashi Nagai, *Towers of Peace* [1]

Remember your humanity, but forget about a nuclear free world for now. That may not be the official line, but it was the take-away message from the Pugwash Conference sessions in Nagasaki on November 1, 2015. Diplomatic niceties and patience were emphasized at this time when "mutual trust and confidence" have declined amid alarming new regional conflicts and refugee crises. The imbalances of economic and military power make nuclear deterrence, with only slow, incremental disarmament, the only safe way to proceed.

One might think that because the Pugwash Conference espouses such high ideals that it has always called for the immediate abolition of nuclear weapons, but it never actually made such a radical demand. The website of the *Pugwash Conferences on Science and World Affairs* includes the following description of the founding of the organization:

> During the darkest days of the Cold War, the founders of Pugwash understood the dangers of nuclear weapons. In their efforts to change dangerous policies they became pioneers of a new kind of transnational, "track 2" dialogue. [2]

The conference was founded two years after Albert Einstein and Bertrand Russell had released their famous 1955 manifesto, signed by nine other distinguished scientists [3]. It is notable that the manifesto did not stress the abolition of nuclear weapons but rather the abolition of war. It stated, "Although an agreement to renounce nuclear weapons as part of a

general reduction of armaments would not afford an ultimate solution, it would serve certain important purposes." A footnote called for this to be a "concomitant balanced reduction of all armaments." The manifesto seemed to assume that nuclear weapons were here to stay and would inevitably be used in war, so the more urgent issue was for nations to accept "distasteful limitations of national sovereignty" and "find peaceful means for the settlement of all matters of dispute between them."

Thus one shouldn't expect the Pugwash Conference to be a militant organization that cannot tolerate the existence of nuclear arsenals. Pugwash and its co-founder were awarded the Nobel Peace Prize in 1995 in recognition of their mission to "diminish the part played by nuclear arms in international politics and, **in the longer run**, to eliminate such arms" [4] (emphasis added).

Other organizations have emerged over the years that have much less patience for elimination "in the long run," so the Pugwash Conferences now seem complacent by comparison.

The hypocenter in Nagasaki. An anonymous family strolls through my shot of the Mother and Child Statue, November 1, 2015.

At the Pugwash Conference public session in Nagasaki on November 1, 2015, most of the speakers, aware that they were facing an audience of divided opinions, chose to stick to factual reports and to refrain from expressing their personal conclusions. Government officials preached pragmatism and patience.

There was no opportunity for the audience to challenge the ideas presented or have a dialogue with the speakers. The Q and A sessions were too short, and only the Pugwash members in the front rows were offered

chances to ask questions, and most of them were inarticulate and long-winded commentaries. Some of them showed by their questions that they hadn't even been following current events like Fukushima and didn't know some of the basic science and history of the nuclear era, but they may have been deliberately asking naïve questions just to make a point.

Meanwhile, the general public and media representatives in the back rows were supposed to only listen and learn. It was ironic to hear the speakers saying repeatedly that the public is woefully ignorant about the issues and needs to be educated, while here members of the public had made the effort to attend yet their questions and comments were not wanted. Why should the public get educated if they are not going to have any influence even at a small conference such as this?

This structure revealed what seems like a serious problem with the Pugwash organization. Perhaps back in 1957, when the US and USSR were playing with hydrogen bombs like they were firecrackers, there really was an urgent need for scientists from both countries to get together in a remote place for private meetings so that they could go back and hopefully influence leadership in their respective countries, but this no longer seems necessary. This sage-on-the-stage approach is out of date now when scientists are even more sidelined from power than they were then. The mass media will flock to a press conference concerning the latest iPhone release, but there is no equal to Russell or Einstein today who can assemble the media to take note of an "important announcement."

What is needed now are truly participatory events that are connected with critical voices, citizen groups, and contrarians who can break through the polite diplomatic niceties and stale frameworks in order to truly debate the issues—at the risk of offending the dignitaries present. These problems can't be solved if leaders are not going to really make the effort to educate themselves while they educate others, get out of their elite bubbles, then listen and do the hard work of leading by obeying.

What follows is a discussion of the session that was held on the afternoon of November 1, 2015. For anyone who has been following the anti-nuclear movement on the street or in the free-for-all of alternative media, blogs, Twitter, and Facebook groups, the stilted and constrained parameters of discussion will come as a shock. All discussions were limited by the realities that have been laid down by the United Nations and the signatories of the Non-Proliferation, Strategic Arms Limitation, and Nuclear Test Ban Treaties. The experts who know the history of these treaties can extemporaneously list all the dates, treaty numbers, signatories, conditions, and exceptions, with the effect that the listener is left in a state of utter

confusion and intimidation. Once one becomes an expert in this subject, one is in that world and can no longer think about lofty ideals and principles. The possible is restricted by what the treaty history has carved out. So this process is very slow at nuclear disarmament, but it is very effective at disarming anti-nuclear activists who would like to see rapid change.

From the start, the anti-nuclear activist is already out of the picture because the basis of all the Non-Proliferation Treaties is that all states which agree to forego the development of nuclear weapons are guaranteed the freedom to develop nuclear energy. This idea became entrenched before the first nuclear catastrophes, and it is always presumed the IAEA will be eternally omnipotent and capable of spotting any attempt to convert plutonium from a civilian waste product to one that is militarily useful.

Thus the entire framework of global disarmament has no problem with the legacy of Chernobyl and Fukushima Daiichi, and the risk of other future catastrophes is not a concern. The treaties have nothing to say about unsecured uranium mine tailing ponds, depleted uranium weapons, and the seventy-year-old unresolved question of what to do with nuclear waste. Ecological, social and human health impacts are of no concern.

Spent nuclear fuel facilities could be considered as a radiological weapons which nations stupidly build as if they wanted to do a favor for any future aggressors they might face. They spare enemies the need to have a nuclear weapon because all they require is a conventional missile to launch at a nuclear facility. Or it could be that nuclear facilities are supposed to be a kind of a deterrent. Who would want to pillage or occupy a country after it has been turned into a nuclear wasteland? Unfortunately, disarmament treaties pay no attention to this hazard.

One of the first people on the stage was Hitoshi Kikawada, Parliamentary Secretary, Ministry of Foreign Affairs, Japan, who repeated the usual government platitudes: the only country ever attacked by nuclear weapons, deeply committed to a world free of nuclear weapons, and so on.

If the Japanese government were serious and it really wanted to change the behavior of the nuclear states, it would break off ties, impose sanctions, and employ any means available to alter the behavior it wanted changed. This is where Japan's hypocrisy becomes obvious. It is hardly "deeply committed" to a nuclear free world at all. It may *want* a nuclear free world, but it is not a high priority. If Japan were serious, it would come out from the US nuclear umbrella, and, as long as the US insisted on having nuclear weapons, it would not host US military bases on its soil. States like Japan, which live under a nuclear umbrella, have been called the "weasel states" [5] of global disarmament talks, and along with the truly non-nuclear states

they have always overlooked their power to shun, exclude, and sanction the nuclear powers as a strategy for forcing them to change their ways. Perhaps the time has come for them to employ this strategy, but so far they have been divided and ruled, or other considerations force them to stay in their alliances.

At this time of "heightened tension" and "degraded trust" (people at the conference hesitated to say "Syria" or "Ukraine" explicitly), it was interesting to see two officials from the US and Russia sitting side by side, sticking to their talking points while diplomatically only alluding to the mutual grievances that were on full display at the UN just weeks earlier. [6] But at least they showed up in this forum to respond to an organization that has for 61 years urged the superpowers to seek peaceful solutions and pursue disarmament. In the roster of speakers, the absence of representation from North Korea, Pakistan, Israel, and France was notable, and no one from Germany was there to discuss its recent exit from nuclear energy or its diplomacy on the front lines between East and West.

Anita Friedt, Principal Deputy Assistant Secretary, Bureau of Arms Control, Verification and Compliance, Department of State (USA), claimed that arms reductions are continuing, and went over the progress of the 1990s. She said the expensive upgrades to the arsenal consist of no expansion of capability. Knowing that President Obama has been ridiculed for his Nobel Peace Prize, she insisted that his commitment to a world without nuclear weapons hasn't diminished. She just blamed Russia for not picking up the offer to begin talking about reductions.

She said all this apparently oblivious to Russia's reasons for not being ready for such a step. She would be a rather incompetent official if she didn't know that Russia is displeased with eastward expansion of NATO, overseas "democracy promotion" propaganda in Eastern Europe (even within Russia), [7] the recent decade of illegal wars and drone-targeting against sovereign nations (Afghanistan, Iraq, Libya, Yemen, and Pakistan), and America's enormous expenditures on advanced conventional weapons that aim to eliminate strategic parity. [8] It's hard to know if she is incompetent or if she was deliberately trying to portray this false image of American innocence. Vladimir Putin has spoken very clearly on these points at recent press conferences, so the Russian point of view is hardly a state secret. [9]

Mikhail Ulyanov, Director of the Department for Non-Proliferation and Arms Control, Ministry of Foreign Affairs, Russia, hinted at these grievances but didn't state them explicitly. This was a shame because the audience may not have grasped exactly what he was referring to, and in

any case, a good raging argument would have made things interesting. It was mid-afternoon by this time and the audience was getting drowsy. I had to wonder if this is the reason we now have this lamentable state of "degraded trust" over "situations" that couldn't be described. If speakers at such gatherings didn't use such passive and evasive language, perhaps they could really talk and work out their differences right there.

Mr. Ulyanov stressed the important point that one cannot talk of nuclear disarmament without talking about imbalances in conventional weapons. He could have expanded this point by adding that conflicts are ultimately driven by financial interests and financial crises. Russia knows well that the conflicts in Ukraine and Syria involve struggles over energy resources and efforts to bring those countries, and surrounding regions, into Western economic spheres.

Mr. Ulyanov, like his counterpart, said some questionable things when he stated an opinion about deterrence. He claimed that we just have to accept that disarmament will proceed slowly because the rapid loss of deterrence could be extremely destabilizing. As evidence he said that deterrence with conventional weapons failed in WWII, and the USSR lost 27 million lives in that war. He said Russia cannot accept ever risking that situation again. However, he left out some crucial details such as the fact that Stalin had purged his military of effective leadership by the time the Nazis invaded. The Western frontier of the USSR was not sufficiently defended to deter or stop the Nazi advance. The Soviets had no effective conventional deterrence at the time, but perhaps there is some confusion on this point between "failure of deterrence" and "absence of deterrence."

Other nations in Europe also made insufficient attempts to create conventional forces that would deter Germany. Mr. Ulyanov's argument assumes that deterrence existed but failed, when in fact it follows logically from the word's meaning that if it failed it didn't exist. American general Brent Scowcroft made this point in 1983 when he said, "... deterrence is a very ambiguous notion. It cannot be demonstrated unless it fails, in which case you know it was not there. Otherwise, it cannot be demonstrated." [10] It is difficult to conceive of how Germany could have avoided defeat once it was opposed by both the USSR and the USA, so Hitler should have been deterred but he obviously wasn't. Considering the gamble he took in fighting the war he chose to fight, it is conceivable that he wouldn't have been deterred in the post-nuclear world, either. Such a reckless leader might gamble that no one would dare use a nuclear weapon, and indeed North Vietnamese and North Korean leaders did not surrender under threats from a nuclear-armed opponent. Conversely, we could ask if

the US was no longer deterred after Iraq and Libya gave up their nuclear programs. Deterrence is an enigma. There are no definitive answers to these questions.

In any case, the circumstances of WWII were unique, and we must keep in mind that deterrence is not a concrete noun. It doesn't exist in weapons themselves. It exists as a set of behaviors and messages deployed in a particular circumstance in order to *try to* influence the behavior of others. Nations can defend themselves, and war can be avoided in numerous ways without a nuclear arsenal, and even a nuclear arsenal wouldn't be enough to deter all hypothetical opponents. In fact, the existence of a nuclear arsenal creates new dangers and can make nations extremely complacent about building the foundations of lasting peace.

Furthermore, if we assume that nuclear deterrence succeeded after WWII, that is only the selfish viewpoint of the superpowers counting the lives of their own citizens. The newly de-colonized countries that were devastated by Cold War conflicts might have a different view. We also have to take account of the opportunity costs, and the ecological and human toll of uranium mining and the manufacturing and testing of nuclear weapons, both inside and outside the territories of the US and the USSR. The nuclearization of nations also transformed them into paranoid security states, and the harm to the political and social fabric was carried over to the "war on terror." Finally, while one is busy nuclear deterring, one is running the constant risk of unleashing all the consequences that would follow from the accidental detonation of a nuclear weapon. The logic of deterrence doesn't hold up, but if Russia still wants to insist they need deterrence, then logically it makes sense for all nations—and the weaker ones need it all the more.

Mr. Kim Won-soo, UN Under Secretary-General and Acting High Representative of Disarmament Affairs (Republic of Korea) was next and spoke of being "deeply disappointed" by the recent failure of NPT Conference earlier in 2015. [11] For this author it was "deeply disappointing" that he couldn't specifically talk about some of the reasons for the failure—specifically, Israel's refusal to allow international inspection of its nuclear facilities. The hesitation to name names and describe specific disagreements amounts to a shrug in which global leadership just seems to wistfully say "stuff happens."

Professor Hiromichi Umebayashi, of the University of Nagasaki, discussed his group's proposal for working toward a nuclear free Northeast Asia. This plan seemed fatally flawed. It is hard to understand how they could seriously believe that North Korea would ever consider this plan. It

depends on the building of mutual trust among North Korea, South Korea, and Japan, with China, Russia, and the US promising (Scout's honor) to never resort to the use of nuclear weapons in a dispute in this region. One flaw in the plan is the fact that the US is called a "neighboring nation" as its territory is nowhere near Northeast Asia. More importantly, North Korea would never consider this proposal while Japan stays under the US nuclear umbrella and hosts US military bases. Even if the US promised not to use nuclear weapons, its nuclear-armed submarines would still be patrolling the ocean in the region, and the US would be capable of hitting North Korea from afar by other means even if the subs were removed.

Furthermore, North Korea distrusts Japan for all the same reasons as China and South Korea. There is no common agreement about what happened in the region in the early 20th century, and this problem provides a rather weak foundation for building the trust needed for a nuclear weapons-free zone. A nuclear free Northeast Asia seems to require a nuclear free world, so the first step would be for South Korea and Japan to each unilaterally break with the American alliance. This would be the only change that North Korea could believe in. But even then there would be that little problem of Japan's plutonium stockpile in Rokkasho. What, exactly, are their intentions?

The final speaker was Ambassador Akylbek Kamaldinov, Ambassador Extraordinary and Plenipotentiary of the Republic of Kazakhstan to Japan, who was honored by Pugwash for his nation's bold decision to relinquish the nuclear weapons it had on its territory at the breakup of the USSR. Kazakhstan has recently announced that it wants to lead a movement that will see the world free of nuclear weapons by 2045. They take the high ground in speaking about nuclear weapons, but speak little of the widespread contamination throughout the country caused by seven decades of uranium mining. Kazakhstan is a leading producer of uranium, and Japanese Prime Minister Shinzo Abe was recently there concluding deals for the future development of nuclear energy. [12]

Progress in nuclear disarmament is impossible if two aspects of the accepted reality continue to go unchallenged. Firstly, nuclear energy is incompatible with a world free of nuclear weapons. Secondly, few countries will want to give up their nuclear deterrence as long as one superpower maintains a global network of military bases and outspends all others combined on conventional military forces. [13] The Nagasaki Declaration released after the conference (November 2015), called for only for "the containment of nuclear technology risks," when referring to the Fukushima Daiichi catastrophe. Otherwise, Pugwash endorses nuclear energy in a

world free of nuclear weapons, a co-existence that many anti-nuclear activists believe would be impossible to sustain. The declaration also stated that "all parties must avoid military conflicts at all costs" but it made no mention of the extreme imbalance in conventional military forces and military spending between America and every other nation. [14] Like many advocacy groups, Pugwash has decided that the best is the enemy of the good, but that also means the good is an ally of the worst. There is a time to be practical, but one must also follow logic wherever it leads. The pursuit of practical "third way" compromises has eroded international security. Groups that pursue only what they deem politically feasible and safe are like the drunk who lost his keys on a dark street. The keys are not under the lamp post, but that's the only place he will look because the light is better there.

Notes

[1] This quotation is on display in the Nagasaki Atomic Bomb Museum. For information about Takashi Nagai, read *A Song for Nagasaki: The Story of Takashi Nagai-Scientist, Convert, and Survivor of the Atomic Bomb*, by Paul Glynn (Ignatius Press, 2009).

[2] "History," Pugwash Conferences on Science and World Affairs, accessed August 27, 2016, www.pugwash.org/history.

[3] "The Russell Einstein Manifesto," Pugwash Conferences on Science and World Affairs, accessed August 27, 2016, http://pugwash.org/1955/07/09/statement-manifesto.

[4] "Oslo Award of the Nobel Peace Prize," Pugwash Conferences on Science and World Affairs, accessed August 27, 2016, http://pugwash.org/1995/12/10/oslo-award-of-the-nobel-peace-prize.

[5] Kourosh Ziabari, "Alice Slater: US is not Honoring its NPT Promise for Nuclear Disarmament," Fars News Agency, October 31, 2015.

[6] Luciana Bohne, "A Game of Dice With Russia: 'Do You Realize What You Have Done?'," *Counterpunch*, October 1, 2015, https://www.counterpunch.org/2015/10/01/a-game-of-dice-with-russia-do-you-realize-what-you-have-done/.

[7] Gerald Sussman, "The Myths of 'Democracy Assistance': U.S. Political Intervention in Post-Soviet Eastern Europe," *Monthly Review*, December 6, 2006, https://monthlyreview.org/2006/12/01/the-myths-of-democracy-assistance-u-s-political-intervention-in-post-soviet-eastern-europe/.

[8] "Gorbachev calls US military might 'insurmountable obstacle to a nuclear-free world'," *Russia Today*, August 6, 2015, https://www.rt.com/news/311796-gorbachev-nuclear-free-world/.

[9] "Meeting of the Valdai International Discussion Club," October 22, 2015. Accessed August 27, 2016, en.kremlin.ru/events/president/news/50548.

[10] ABC News Viewpoint, Discussion panel following the broadcast of *The Day After*, November 20, 1983, 00:21:23~. Accessed August 27, 2016, https://youtu.be/UzXcQ2Lr-40.

[11] Editorial, "Disappointing NPT Conference," *Japan Times*, May 26, 2015, https://www.japantimes.co.jp/opinion/2015/05/26/editorials/disappointing-npt-conference/.

[12] Kyodo News, "Abe Says Japan Can Reap 3 Trillion Yen in Central Asia Projects," *Japan Times*, October 27, 2015, https://www.japantimes.co.jp/news/2015/10/27/national/politics-diplomacy/abe-vows-support-kazakhstans-plan-introduce-nuclear-power/#.Wnz-rRcixQM.

[13] Chalmers Johnson, "America's Empire of Bases," *TomDispatch.com*, January 15, 2004, http://www.tomdispatch.com/post/1181/chalmers_johnson_on_garrisoning_the_planet.

[14] Nagasaki Declaration of the Pugwash Council, Pugwash Conferences on Science and World Affairs, https://pugwashconferences.files.wordpress.com/2015/11/20151105_pugwash_nagasaki_declaration_for_release_embargoed.pdf.

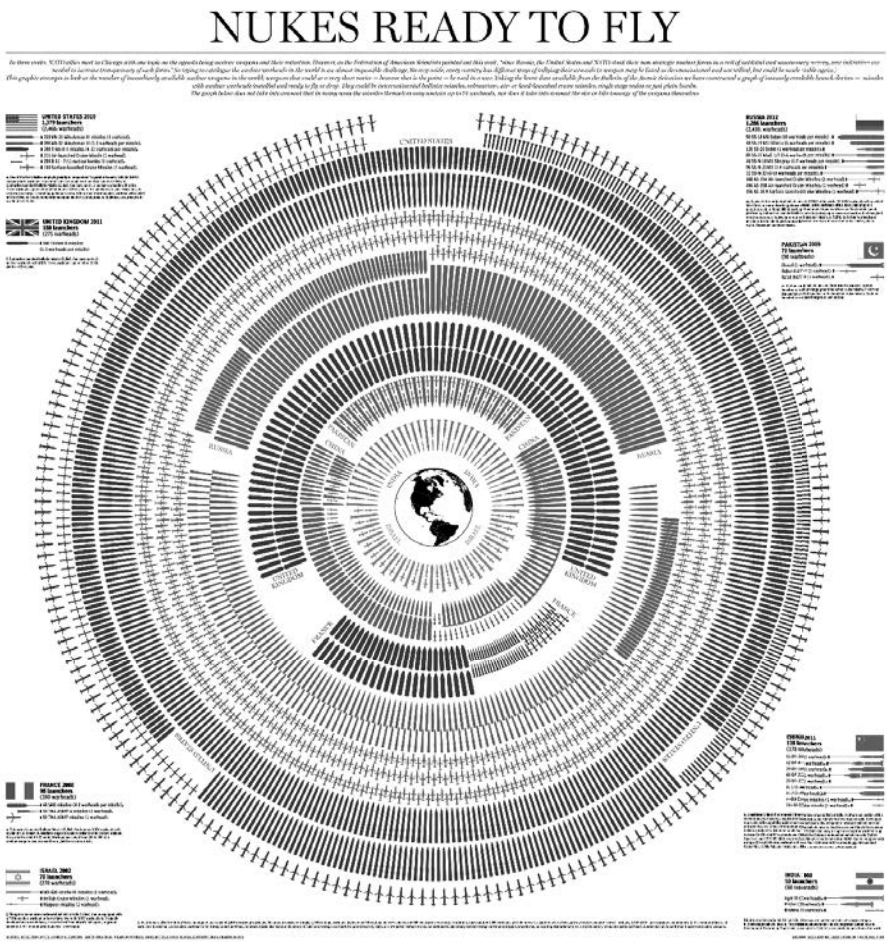
27. Connecting Nuclear Disarmament to the Demilitarization of World Politics

There may be no more urgent task for human survival than the elimination of nuclear weapons, and there is apparent universal agreement on this, but one of the many paradoxes of things nuclear is that the obvious thing that everyone wants has proven unattainable. Everyone says she wants a nuclear-free world, but the facts on the ground speak otherwise. One might say that the entanglements of international relations have left humanity in a political situation that is like the paradox of quantum physics that emerged early in the nuclear age. In 1935, physicist Erwin Schrödinger conducted a thought experiment which he called entanglement. He described how a cat may be simultaneously alive and dead in a state known as a quantum superposition, if its survival were linked to a random subatomic event that may or may not occur. If it is true for a cat, then perhaps all of life on a tiny planet could be in the same undetermined state, waiting for some final act of observation that decides whether the human species really wants to live or whether it has a death wish. Only such counter-intuitive imaginings could explain how we have managed to exist so long on the razor edge between peace and annihilation.

To push this analogy a little further, we could say that there is another sort of duality in existence when it comes to nuclear disarmament. There are two effective forces in nuclear disarmament, but their paths may never cross. One is the force within the circles of political power, while the other is the force of the disarmament groups that work, with questionable effectiveness, from outside the circles of political power. Both seem to carry on their activities oblivious to those of the other.

Leaders of the superpowers have, on rare occasions in the past, come together briefly to make significant de-escalations in the strategic arms race. In 1963, the UK, US and USSR signed the Limited Nuclear Test Ban Treaty, and in the 1980s and early 1990s short and medium-range

nuclear weapons were removed from Europe, and in total the arsenals of the US and Russia were reduced by about two thirds. Leaders took these actions because of pressure from within government to reduce the costs and hazards of maintaining these arsenals, but they also claimed to be reacting to popular pressure. It is also likely that these bold changes occurred only because of the personalities of the individual leaders involved. Kennedy, Khrushchev, Reagan and Gorbachev were strongly opposed within their own governments, but they had the courage to overrule domestic opposition, put aside differences about other aspects of Cold War rivalry (such as the non-trivial matter of how they were simultaneously plunging the Third World into their proxy wars) and prioritize the reduction of a mutual existential threat. Considering how rare these moments of progress have been, we have to wonder if further progress will depend on the lucky coincidence of compatible leaders with the right intentions rising to power once again. It would be foolish to depend on such luck, but what else is there in the historical record?



This famous infographic depicts the approximate 15,000 nuclear weapons in existence, their types, and the nations that possess them.

The other parallel track of disarmament is in all the efforts that happen outside of actions taken by the superpowers. (The lesser nuclear powers, the UK, France, China, India, Pakistan, Israel and North Korea, NATO members and others under the US "nuclear umbrella" make no initiatives at all.) Various non-government organizations and non-nuclear nations have held independent or UN-sponsored initiatives to revise and strengthen the Non-Proliferation Treaty and force the nuclear powers to disarm, but there has been no significant progress since the early 1990s, and in fact, the trust that was so hard won then has been squandered. Now there is a

general consensus that the US and Russia are in a Cold War II that is similar but different, and perhaps worse than the first one in some ways, mostly because of the incompetence of the new generation of leaders who don't comprehend the risks.

The nuclear powers usually snub the conferences and legal challenges of disarmament groups, but when they deign to appear it is just to make a brief statement asking the non-nuclear nations to give up their plans, urging that rapid disarmament would lead to a dangerous "destabilization." It is as if the NGOs and non-nuclear nations are being told they are powerless and too foolish to know what is good for them. The US and Russia may not love each other anymore, but it is time for the children to accept the divorce and, like, mommy and daddy, get on with their lives. So far, no one in the disarmament movement has figured out a version of *The Parent Trap* to manipulate them into a reconciliation.

One group that has made an impressive statement on disarmament is *Wildfire*, a group that has tried to "change the game" by calling for more aggressive approaches with "no more commissions, pontificating windbags, paper cranes, NPT treadmill, and no more whining, wishing or waiting." [1] At the 2014 Vienna Conference on the Humanitarian Impact of Nuclear Weapons, using clear language that cut past the diplomatic niceties and technical jargon, they called on the non-nuclear nations to stop enabling their abusers:

> … my message today is for those states which do not have nuclear weapons, for those states which, whatever the security threats they face, have foresworn nuclear weapons by joining the NPT, for those states which, despite having no nuclear weapons, unjustly bear the risks and will bear the terrible consequences of their use, and my message to you, states without nuclear weapons, begins with these words from Isaiah:
>
> "How long, Oh Lord?"
>
> "Until the cities are wasted without inhabitant, and the houses without people, and the land lies utterly desolate."
>
> How long will you keep playing this game? How long will you listen politely to the nuclear-armed states? How long will you continue to accept the procrastination, empty promises and endless excuses of the nuclear-armed states? How long will you listen politely to nuclear-armed states that claim to support the Comprehensive Test Ban Treaty as a crucial step towards disarmament, but haven't ratified it after eighteen years? How long will you listen to the nuclear-armed states

> express their unequivocal commitment to nuclear disarmament and then come here and say that they need their nuclear weapons for stability? How long will you wait for these mythical "right conditions" for nuclear disarmament?
>
> And now you have at last begun this discussion of the humanitarian impact of nuclear weapons. How many more meetings will you have? How many times will you listen to the harrowing tales of victims? How many times will you listen to the chilling scientific accounts of catastrophic consequences? How many times will you listen to analysis of the alarming risks of accidents, miscalculation or deliberate use? How long will you sit, and worry, and complain, and talk, and talk and talk? How long, Mr. Chairman, until you, the states without nuclear weapons, decide to take this matter into your own hands and act? Because until you do this charade is going to continue. Even if we take the nuclear-armed states at their word, and believe that they are sincere about disarmament, it is clear that they are addicted to their weapons. They are like the alcoholic who is always promising to stop drinking but somehow never does. Their weapons possess them.
>
> Nobody can force an alcoholic to stop drinking, and nobody can force the nuclear-armed states to disarm. Only they can choose to give up their weapons, but you, the sober members of the family of nations, can stop enabling them. You can remove the ambiguity that supports their habits. You can make clear where you stand and what you will not accept. You can negotiate, and adopt, and bring into force a treaty banning nuclear weapons. This is something you can do. It is something you can do now. The alternative is to sit, passive and impotent, while the nuclear-armed states continue as they always have, risking your security, along with all of human civilization, in a misguided attempt to protect theirs. It's your future, and your choice. You can sit, and wait, and whine, or you can take control and negotiate a treaty banning nuclear weapons. [2]

This suggestion that the non-nuclear states should take matters into their own hands is a logical step. It is indeed what is necessary, but two years have passed since this statement was delivered and none of the non-nuclear nations have taken up the call to stop enabling the nuclear-armed states. In August 2016 in the UN Working Group on Nuclear Disarmament "an overwhelming majority of nations… signaled their clear intention to join negotiations in 2017 on a treaty prohibiting nuclear weapons," [3] but this commitment will be meaningless if it is not backed up by a coalition of

the weak that can impose punishing sanctions on the strongest nations of the world. The reasons this won't happen should be obvious. The international community lacks the will, and there is no interest in such reform in the domestic politics of the nuclear-armed states. In an interview Edward Snowden gave around the same time as the 2014 Vienna conference, he explained his view of why there has been no popular resistance to the intrusions of the American security state into the private communications of citizens, an issue which nonetheless receives more attention than nuclear weapons:

> I don't believe the political will be successful, for exactly the reasons you underlined. The issue is too abstract for average people who have too many things going on in their lives. And we do not live in a revolutionary time. People are not prepared to contest power. We have a system of education that is really a sort of euphemism for indoctrination. [4]

There are many other causes for which American citizens could be protesting against their own government, and others for which foreign governments and foreign citizens could also be stopping the actions of the American government: international trade agreements that favor the rights of corporations, ecological destruction, income inequality, food insecurity, arms sales to nations that abuse human rights, interference in the domestic affairs of foreign nations, abuse of international law, use of inhumane conventional weapons in wars that are not sanctioned by UN resolutions. All of these issues directly affect the lives of people in much more tangible ways than arsenals of nuclear weapons that have never been used in warfare since 1945. It is not likely that any single nation or a coalition of nations will do what is necessary to force the nuclear-armed states to give up their weapons. Whatever level of sanctions and boycotts would be necessary to force such change, it's clear that there is no group of nations with an interest in finding out.

A few historical examples demonstrate the lengths to which nuclear-armed nations will go to punish junior partners that step out of line. In the 1970s, Australia had a prime minister who wanted to renegotiate the nation's security arrangements with the US. The Americans began to fear that their strategically important intelligence gathering facility in the Australian desert would be closed down, so pretty soon the CIA-friendly governor general fired the prime minister. [5] In the 1980s, France exerted economic torture on New Zealand in order to win the release of French

intelligence officers who had killed a man on the Greenpeace ship Rainbow Warrior in 1985. France was ready to use its influence in the EU to block all agricultural imports from New Zealand. The New Zealand prime minister had to surrender because the public would have never accepted such economic damage as the cost of standing up for a principle. [6]

When it comes to the topic of boycotts, sanctions and disinvestment to punish nuclear-armed states, we need to look at how the undeclared "ambiguous" nuclear power Israel is reacting to the BDS movement over its treatment of Palestinians. Israel has exerted pressure on foreign governments to make boycotts illegal, something South Africa never managed to do during the period of sanctions over Apartheid. If this state of affairs exists regarding a campaign against abuses that are actually happening, it is difficult to imagine that a coalition of non-nuclear states could organize a "BDS" campaign against nuclear weapons that are sitting harmlessly (for now) in their silos.

In fact, the BDS campaign itself has expressed little concern about Israel's status as a non-declared possessor of nuclear weapons. Where would we begin in convincing Israel to give up this arsenal that it can't even admit to owning? There can be no doubt that Israel thinks far ahead to a day when the Arab states' oil is depleted, the region is in even worse chaos than now, and American support is gone. Israel wants its nuclear deterrent for that day, so it is inconceivable that any amount of outside pressure would force it give up its nuclear weapons. This topic never comes up at disarmament conferences because there is no desire to get "sidetracked" into the enormously contentious issues in Middle East politics, especially not Israel's right to exist and protect that existence with a nuclear deterrent. It is deemed better to pretend that we can make progress in nuclear disarmament without facing the connections to other intractable problems in international relations. At the 2015 Pugwash Conference in Nagasaki I witnessed Mr. Kim Won-soo, UN Under Secretary-General and Acting High Representative of Disarmament Affairs, claim that he was merely "extremely disappointed" that the recent NPT negotiations failed. He failed to mention any countries by name or that his disappointment referred to a motion that would have forced Israel to declare whether it possessed nuclear weapons, one that was overruled by the US, the UK and Canada. [7]

It is said that states have no morals; only interests, and we could add that when it comes to enduring economic pain, democracies have no self-respect and no principles. A leader like Fidel Castro was able to withstand American sanctions because he could force his people to pay the price. If he had been facing re-election in a year's time, it is doubtful

he would have been supported by popular pressure to endure the economic pain of five decades of sanctions. While the nuclear-armed states are addicted to their weapons, the non-nuclear armed states are addicted to their access to markets in the nuclear-armed states. At this time, it is simply not conceivable that a new non-aligned movement could succeed after the failure of the first one launched in Bandung, Indonesia in 1955, which the United States found intolerable. Ten years later, Southeast Asia was engulfed in a decade of civil wars, genocide and carpet bombing.

But this sort of historical awareness, or awareness of any concerns besides nuclear weapons, seems to be something that the present disarmament movement is not very good at. The movement lives in a silo, and it has to get out and engage with the problems that need to be resolved before we can get to nuclear disarmament.

One reason for this sidelining of the disarmament movement may have been the recent appearance in it of former American cold warriors such as Henry Kissinger who have "seen the light" in their old age and come around to admitting the uselessness of nuclear arsenals. However, beneath this apparently enlightened discourse, there is a seldom-stated assumption of a continued American exceptionalism and hegemony. In an editorial in *The New York Times*, James E. Cartwright and Bruce G. Blairaug argued for adopting a nuclear "no-first-use" policy by saying first use would never be necessary because the US enjoys dominance in every other aspect:

> Our nonnuclear strength, including economic and diplomatic power, our alliances, our conventional and cyber weaponry and our technological advantages, constitute a global military juggernaut unmatched in history. The United States simply does not need nuclear weapons to defend its own and its allies' vital interests, as long as our adversaries refrain from their use. [8]

The authors evince no awareness that it is this very predominance that makes old hawks like Kissinger think nuclear weapons are no longer necessary and makes America's adversaries want nuclear weapons. When the nuclear-armed states speak euphemistically about the loss of "stability" that would come with rapid disarmament, they are talking about this stability that comes from the predominance of American power. Americans want to preserve the advantage which they call "stability," and all the other nuclear-armed states want to hang onto the "stability" that comes from having a nuclear deterrent to hold American power at bay. It should be obvious to all that there is only one player in this dangerous game that can unwind it (Hint:

It's not North Korea).

Mikhail Gorbachev, the last head of state of the USSR, is a man who knows a few things about negotiating with Americans. He has been pointing out this problem ever since President Bush the First declared the American-led New World Order in 1990. Gorbachev is still fully committed to both the total elimination of nuclear weapons and nuclear power plants, but he has consistently pointed out the problems that lie beyond this elusive goal. In his recent book *The New Russia*, Gorbachev discussed some of the comments he has made over the years on America's abuse of its status as the world's sole superpower:

> ... could it be considered realistic if, after ridding the world of weapons of mass destruction, one country would still be in possession of more conventional weapons than the combined arsenals of almost all other countries in the world put together? If it were to have absolute global military superiority? In my speech [World Political Forum, Turin, May 18, 2003] I warned that the answer could only be negative: I will say frankly that such a prospect would be an insurmountable obstacle to ridding the world of nuclear weapons. If we do not address the issue of a general demilitarization of world politics, reduction of arms budgets, ceasing the development of new weapons, a ban on the militarization of space, all talk of a nuclear-free world will come to nothing.
>
> I reminded the conference that when, in years gone by, we had proposed moving forward to a non-nuclear world, our Western partners had raised the issue of the Soviet Union's superiority in conventional weapons. We had not tried to evade it and had entered negotiations that led to a mutual reduction of conventional arms in Europe. Today we needed the West to adopt a similar approach.
>
> More general problems must also be addressed if we are to build a relationship of partnership and trust. Foremost is the problem of military superiority. I pointed out that the US National Security Strategy adopted in 2002 explicitly proclaimed the principle that the United States should enjoy global military superiority: "This principle has in effect become an integral part of America's creed. It finds specific expression in the vast arsenals of conventional weapons, the colossal defense budget and the plans for weaponizing outer space. The proposed strategic dialogue must include all these issues." [Mikhail Gorbachev referring to his *New York Times* editorial of April 22, 2010]
>
> The correlation between reduction and elimination of weapons of mass destruction and the general state of international relations and

> security is something any sober-minded politician should be keeping in mind. The generation of politicians that replaced ours failed signally to improve security in Europe and the rest of the world. The worst blunder was the decision to expand NATO and turn it into a 'guarantor' of security not only in Europe but beyond its borders. [9]

Gorbachev also cited the speech he gave in Fulton, Missouri, in May 1992, the hometown of President Harry Truman where Winston Churchill made the speech that launched the Cold War in 1946:

> Under the guise of protestations of peace-loving intentions and the need to protect the interests of the world's peoples, both sides took decisions that split the world. Their antagonism was misrepresented by both sides as a necessary confrontation between good and evil... [The most important thing today was] not to make the intellectual, and political, mistake of seeing overcoming the Cold War as a victory for America. We now have the opportunity to move forward to peace and progress for everyone, relying not on force, which is a threat to all civilization, but on international law, the principles of equal rights, a balancing of interests, freedom of choice, cooperation and common sense.
>
> I urged my listeners to acknowledge an important reality: it was not possible in this day and age for "particular states or groups of states to reign supreme on the international stage." My speech at Fulton was less a polemic against Churchill than against those hatching plans for global domination. [10]

Mr. Gorbachev's insights here suggest that something needs to be added to *Wildfire*'s refreshing appeal to cut through ossified discourse on disarmament. Dismantling American hegemony and the military industrial complex is a prerequisite of nuclear disarmament. It is not something that can wait for later. Unfortunately, the permanent war state remained unmentionable even during the 2016 "radical socialist" campaign of Bernie Sanders for the Democratic Party nomination. The historian Gareth Porter argued that it must become a more prominent issue if the progressive movement is to advance:

> So the strategy of the movement… must include a broadly concerted campaign that explains to young people, disaffected working-class people and others how the permanent war state produces winners

> and losers. The winners are the national security organs themselves, as well as those who make careers and fortunes from the permanent state of war. The losers are those who must suffer the socioeconomic and other consequences of such reckless policies. Such a campaign should aim at nothing less than taking away the flow of money and the legal authority that the permanent war state has seized on the pretext of "threats" that are largely of its own making… the legitimacy of the permanent war state is extremely tenuous. A determined campaign to challenge that legitimacy, carried out with sufficient resources over a few years with the participation of a broad coalition, could shake it to its roots. [11]

If this advice applies to the American progressive movement, it also applies to the international community. The call for non-nuclear-armed states to withdraw support of nuclear-armed states would be a highly disruptive change in the world order, one which, judging by the historical record, would be severely resisted by the United States in the form of "making the economy scream," to quote a phrase used by Richard Nixon when Chile wanted to pursue an independent path in the early 1970s. [12] A fascist overthrow of the Chilean government followed the economic torture. It has been argued here that nuclear abolition movements both inside and outside the United States will reach their goals only if they turn their attention first to the non-nuclear bombs that are actually falling on people's heads at the present time. This explains why the *Wildfire* group has found disarmament talks so ineffectual, replete with commissions, pontificating windbags, paper cranes, whining, wishing and waiting. The movement has been unable or unwilling to address the root problems which led to the creation of nuclear arsenals in the first place.

Notes

[1] Wildfire, http://www.wildfire-v.org/

[2] *Wildfire Chief Inflammatory Officer Richard Lennane inflames the Vienna Conference on the Humanitarian Impact of Nuclear Weapons*, December 9th, 2014, https://www.youtube.com/watch?v=qrTk567QRxM.

[3] *Support for a conference in 2017 to negotiate a treaty banning nuclear weapons*, International Campaign to Abolish Nuclear Weapons, August 25, 2016, http://www.icanw.org/campaign-news/support-for-a-conference-in-2017-to-negotiate-a-treaty-banning-nuclear-weapons/.

[4] Katrina vanden Heuvel and Stephen F. Cohen, "Edward Snowden: A 'Nation' Interview," *The Nation*, October 28, 2014, https://www.thenation.com/article/snowden-exile-exclusive-interview/.

[5] John Pilger, "The forgotten coup—how America and Britain crushed the government of their 'ally,' Australia," johnpilger.com, October 23, 2014, http://johnpilger.com/articles/the-forgotten-coup-how-america-and-britain-crushed-the-government-of-their-ally-australia.

[6] Phil Taylor, "The Rainbow Warrior 30 Years On," *New Zealand Herald*, July 10, 2015, http://features.nzherald.co.nz/rainbow-warrior/.

[7] "UN nuclear weapons talks fail 'over Israel row,'" *BBC*, May 23, 2015, http://www.bbc.com/news/world-us-canada-32856926.

[8] James E. Cartwright and Bruce G. Blairaug, "End the First-Use Policy for Nuclear Weapons," *New York Times*, August 14, 2016, https://www.nytimes.com/2016/08/15/opinion/end-the-first-use-policy-for-nuclear-weapons.html.

[9] Mikhail Gorbachev, *The New Russia* (Malden, Massachusetts: Polity Press, 2016), 304-306.

[10] Mikhail Gorbachev, ibid, 340-341.

[11] Gareth Porter, "Why the Sanders 'Revolution' Must Take on the Permanent War State," *Truthout*, June 28, 2016, http://www.truth-out.org/opinion/item/36603-why-the-sanders-revolution-must-take-on-the-permanent-war-state.

[12] Daniel Marans, "Henry Kissinger Just Turned 92. Here's Why He's Careful About Where He Travels," *Huffington Post*, May 27, 2015, http://www.huffingtonpost.com/2015/05/27/henry-kissinger-human-rights_n_7454172.html.

28. Okinawa, Crimea and Vladimir Putin's Warning of an Irreversible Direction in Strategic Weapons Development

These days it takes an independent journalist to pull off the scoops that should be getting national attention. Last month Robbie Martin stumbled upon some Washington insider information that revealed rare insight into the enigma that is Barack Obama's foreign policy, as well as some clues about what the world should have expected from Hillary Clinton, if she had won the presidency in November 2016.

Robbie Martin's subject was Robert Kagan and other neoconservative "thought leaders" who have heavily influenced US foreign policy in the 21st century. After the Republican Party held two disastrous presidential campaigns in 2008 and 2012, these neoconservatives woke up to the fact that the Democratic Party could be moved to embrace many of the same hawkish policies adopted by the Bush presidency. They now find that former Secretary of State Hillary Clinton would be most amenable. After the Republican Party imploded with a field of weak candidates, and Hillary Clinton was believed to be the anointed president, neoconservatives were anxiously waiting for her to carry on with their plans for the new American century. Robbie Martin wrote on his website *Mediaroots*:

> While left leaning voters in the United States are having a conniption fit over the possibility of a Trump presidency, Hillary Clinton has been quietly building a bridge to a sect of Cold War nostalgic neoconservative policymakers in Washington, D.C., getting regular advice from the likes of *Project for The New American Century* (PNAC) co-founder Robert Kagan, and *Center for New American Security* (CNAS) member and former Cheney staff member Eric Edelman. This neocon collaboration was mostly done under the radar until recently, when *Foreign Policy* Magazine announced that "young foreign policy professionals" in collaboration with *The Center for New*

American Security would be hosting an official fundraiser for Hillary.

Robbie Martin joined the fundraiser and let Robert Kagan assume that since he paid the exorbitant fee to join the exclusive event, he must be an avid supporter of everything the CNAS stands for. The short interview he was able to conduct with Mr. Kagan revealed something about Obama's policy that has until now remained unsaid:

> Robbie Martin: I wanted to know what your feeling was on Hillary's approach to Ukraine, is she going to send the weapons to the Ukrainian army?
> Robert Kagan: I mean, I'm sure, I mean the answer to that question is "I don't know." I know she cares a lot about Ukraine and certainly cares more about it than the current president does.
> Robbie Martin: With arms, why do you think the president has sort of dragged his feet?
> Robert Kagan: Uh, because he said to me because he doesn't want to get into a nuclear war with Russia.
> Robbie Martin: That's literally what he said?
> Robert Kagan: Yeah, I don't think…he's not…He's through with his agenda with Putin. I don't think he cares about Putin anymore at all. I think he's hopeless... uh, he thinks Putin is hopeless, but he says, he thinks Ukraine is part of Russian sphere of influence, and it means more to them than it means to us, and therefore we shouldn't escalate in a situation like that. That's why he doesn't want to send arms.
> Robbie Martin: He actually said he doesn't want a nuclear war over Ukraine?
> Robert Kagan: He did. "I don't want to have a nuclear war over Ukraine." My response is, well, who do you want to have a nuclear war over? Do you want to have a nuclear war over. Estonia? I'll go down the list. Germany? If that's your going-in position, then okay, fine. Whatever nuclear countries don't want, we won't do. [1]

That last statement is telling because it assumes as a matter of course that the US does whatever it wants to countries that aren't nuclear. With a "nuclear country" they have to stop and think for a while about how to correct that country's behavior.

The insights in this short conversation about Obama's policies should be of great interest to the American public, and it's a wonder that the president didn't explain them publicly himself. It does indeed seem that

US plans for Libya, Syria and Ukraine were never followed through to the logical end that Washington seemed to want. None of these regime-change operations worked out as planned, and the latter two faltered when met with Russian resistance. President Obama has already stated that Libya was a mistake, but he has said very little about his personal doctrine and aims for Syria and Ukraine, or his acceptance of Russia's need for a sphere of influence. He seemed to be following the wishes of government institutions during the initial stages, but then intervening when it was necessary to avoid confrontation with Russia. For this perhaps the world has to be grateful, but then we have to wonder A) why he chose to go along with these disastrous interventions at all, and B) why he didn't clearly articulate this policy of wanting a détente with Russia. It says a lot about where power lies in the United States when the president has to execute his foreign policy on the down-low like a passive aggressive partner in a bad marriage. And of course, the situation raises troubling questions about what lies ahead after Obama has left office.

When the neocons try to claim that Russia will eventually take over the Baltics, or Germany, they are conjuring up a scenario that is based on no evidence and is beyond belief. They might as well say Iran or China is going to invade Germany. The real danger to the world was spelled out by Vladimir Putin himself in a speech to journalists in June 2016. He explained in very grave terms that since the Bush administration abrogated the Anti-Ballistic Missile Treaty in 2002, then proceeded to develop a new anti-missile defense system (which is also by its nature offensive), the world has come to a point where it "is being pulled in an irreversible direction while they [the United States] pretend that nothing is going on." Russia believes that the best guarantee of peace is for the two nuclear powers to be strategically balanced so that one side will never see an advantage in a first strike. Putin stated that Russia has now recovered from the devastation of its military-industrial complex and has restored strategic parity, but he warns that still the Americans push on with plans to gain advantage.

Putin stated that he didn't expect these journalists, or the companies they work for, to report accurately what he said, and as time passed he was proven right. The Western media ignored his lengthy statement while it continued to publish numerous editorials on the subject of "Russsian aggression." Unfortunately, the task falls to alternative media, social networks and bloggers. The captioned video of the speech, translated into English, circulated widely in social media. The transcript of it makes for an interesting contrast with the words spoken by Robert Kagan.

Vladimir Putin speaking to journalists of the world's leading news agencies on the sidelines of the 20th St. Petersburg International Economic Forum (SPIEF 2016) June 17, 2016:

Listen to me. We are all adults at this table, and experienced professionals at that, but I am not even going to hope that you are going to relay everything, exactly how I said it, in your publications. Neither will you attempt to influence your media outlets. I just want to tell you this on a personal level. I must remind you, though you already know this, that major global conflicts have been avoided in the past few decades due to the geostrategic balance of power, which used to exist. The two super-nuclear powers essentially agreed to stop producing both offensive weaponry as well as defensive weaponry. It's simple how it works—where one side becomes dominant in their military potential, they are more likely to want to be the first to be able to use such power. This is the absolute linchpin to international security: in the anti-missile defense system that was previously prohibited in international law, and all of the surrounding agreements that used to exist. It's not in my nature to scold someone—but when [in 2002] the United States unilaterally withdrew from the 1972 ABM Treaty, they delivered a colossal blow to the entire system of international security.

That was the first blow, when it comes to assessing the strategic balance of power in the world. At that time [2002] I said that we will not be developing such systems either because A) it is very expensive, and we aren't going to burn our money and B) we aren't yet sure how they will work [for the Americans]. We were going to take a different option, and develop offensive weaponry in order to retain said geostrategic balance. That was all. Not to threaten someone else. They said, "Fine. Our defense system is not against you, and we assume that your weaponry is not against us. Do what you like." As I already mentioned, this conversation took place in the early 2000s. Russia was in a very difficult state at that time: economic collapse, civil war, and the fight against terrorism in our Caucasus region, complete destruction of our military-industrial complex. They wouldn't have been able to imagine that Russia could ever again be a military power. My guess is that they assumed that even that which was left over from the Soviet Union would eventually deteriorate. So they said, "Sure, do what you like."

But we told them about the reactionary measures we were going to take, and that is what we did. And I assure you that today we have had every success in that area. I'm not going to list everything. All that matters is we have modernized our military-industrial complex, and we continue to prepare for new-generation warfare. I'm not even going to mention systems against the missile-defense system.

No matter what we said to our American partners [to curb the production of weaponry] they refused to cooperate with us. They rejected our offers and continued to do their own thing. Some things I cannot tell you right now publicly. I think that would be rude of me. And whether or not you believe me, we offered real solutions to stop this [arms race]. They rejected everything we had to offer.

So here we are today, and they've placed their missile defense system in Romania, always saying, "We must protect ourselves from the Iranian nuclear threat." Where's the threat? There is no Iranian nuclear threat. You even have an agreement with them, and the US was the instigator of this agreement, where we helped. But if not for the US then this agreement would not exist, which I consider Obama's achievement. I agree with the agreement because it eased tensions in the area. So President Obama can put this in his list of achievements. But missile defense systems are continuing to be positioned. That means we were right when we said that they are lying to us.

So the "Iranian threat" does not exist, but the NATO Missile Defense System is being positioned in Europe. That means we were right when we said that their reasons are not genuine in reference to the "Iranian nuclear threat." Once again they lied to us. Now the system is functioning and being loaded with missiles. As you journalists should know, these missiles are put into capsules which are used in the sea-based mid-range Tomahawk rocket launchers. So these are being loaded with "anti-missile missiles" that can penetrate territories within a 500-km range. But we know that technologies advance, and we even know in which year the US will accomplish the next missile. This missile will be able to penetrate distances up to 1,000 km and even farther. And from that moment on, they will start to directly threaten Russia's nuclear potential. We know year by year what's going to happen, and they know that we know. It's only you journalists

that they tell tall tales to, and you buy them and spread them to the citizens of your countries. Your people in turn do not feel a sense of the impending danger. This is what worries me. How can you not understand that the world is being pulled in an irreversible direction while they pretend that nothing is going on? I don't know how to get through to you anymore."

And they justify this as a "defense" system, not weaponry that is used for the purposes of offense, but as systems that "prevent aggression." A missile defense system is one element of the whole system of offensive military potential. It works as part of a whole that includes offensive missile launchers. One complex blocks, the other launches a high-precision weapon, the third blocks a potential nuclear strike, and the fourth sends out its own nuclear weapon in response. This is all designed to be part of one system. This is how it works in current, non-nuclear, but high-precision missile defense systems.

Well, OK, let's put aside the actual missile "defense" issue, but those capsules into which "anti-missile missiles" are inserted, as I've mentioned, are sea-based, on warships which carry the Tomahawk subsonic cruise missile system. One could deploy it to position in a matter of hours, and then what kind of "anti-missile" system is that? How do we know what kind of missile is in there? All you have to do is change the program (from non-nuclear to nuclear). That's all it would take. This would happen very quickly, and even the Romanian government itself wouldn't know what's going on. Do you think they let the Romanians call any of the shots? Nobody is going to know what is being done—not the Romanians, and the Polish won't either. Do you think I am not familiar with their strategies?

From what I can see, we are in grave danger. We had a conversation once with our American partners where they said they'd like to develop ballistic missiles without a nuclear warhead. And we asked, "Do you actually understand what that might entail?" So you're going to have missiles launching from submarines, or ground territories—this is a ballistic missile. How would we know whether or not it has a nuclear warhead? Can you even imagine what kind of scenario you can create? But as far as I am aware, they did not go through with developing these weapons. They have paused for now. But the other one they continue to implement. I don't know how this is all going

> to end. What I do know is that we will need to defend ourselves. And even I know they will package this as "Russian aggression" again. But this is simply our response to your actions. Is it not obvious that I must guarantee the safety of our people?
>
> And not only that but we must attempt to retain the necessary strategic balance of power, which is the point that I began with. Let me return to it in order to finish my response. It was precisely this balance of power that guaranteed the safety of humanity from major conflict over the past seventy years. It was a blessing rooted in "mutual threat" but this mutual threat is what guaranteed mutual peace on a global scale. How they could so easily tear it down, I simply don't know. I think this is gravely dangerous. I not only think that. I am assured of it. [2]

In another public exchange that Vladimir Putin had a few months earlier, the last American ambassador to the USSR, Jack Matlock, told him he had been personally in favor of keeping the ABM Treaty, but he also added nonchalantly that Russians should not worry. None of this military hardware is directed at Russia. This is just how America creates jobs. Putin responded by asking, "Why would you create jobs in a sphere that has the potential to put the entire human race in danger?" [3]

I know that many readers would pause after taking all this in and ask, "But what about that 'Russian aggression' in Ukraine and Crimea?" This question has been covered thoroughly, and the reasons Russia found it necessary to intervene can be found easily enough on *Russia Today* and other sources that have examined the issue seriously. Russia looks at its military bases in Crimea as America regards its own in Okinawa and other strategic locations outside of US territory. When Crimea was part of Ukraine, the Russian forces were there under treaty agreements, but when the pro-American, American-backed coup occurred in Kiev, Russia saw clear indications that Russian minorities and the status of the military bases were being threatened by the new regime—a regime that had been installed with the assistance of foreign intervention that went against international law. Ultimately, who is responsible for this general state of international lawlessness? In addition to Russia's strategic reasons for wanting Crimea, Russia's historical claims to the peninsula have merit, and there is the inconvenient fact that the majority of Crimeans are ethnically Russian and chose to join Russia rather than risk a future of ethnic conflict by staying with the disintegrating Ukrainian state.

Instead of rehashing the argument about whether Russia's actions

conform with international law, I'll finish with a compare-and-contrast that illustrates how the US reacts, with utter disregard for international law, when a place within its own sphere of influence is threatened. The co-author of the HBO documentary and book *The Untold History of the United States*, Peter Kuznick, recently discussed the strong local opposition to American military bases on Okinawa:

> When Hatoyama got elected in 2009: a great victory for the Japanese people. The Japan Democratic Party finally overthrew the rule of the LDP, the conservatives, the right wingers, and one of the things that Hatoyama pledged to do during that campaign was stop the base relocation in Okinawa, from Futenma, where the big base is now, to Henoko in northern Okinawa, this pristine beautiful area where they want to relocate the military base, and at least 80% or so of the Japanese people have come out against this repeatedly, and so Hatoyama tried to block the base relocation. Obama basically smashed him. Obama, you would think that Hatoyama, a progressive ally—Obama would embrace him. Just the opposite. Obama cut his feet out from under him, forced Hatoyama to back down on his effort to block the base relocation and basically eroded the popularity and the legitimacy of the Hatoyama government. The Hatoyama regime collapsed, replaced by Kan. They had three JDP prime ministers. They couldn't function. They couldn't rule after that, and the JDP was replaced by Abe and the LDP, and we've seen this nightmare of militarization going on… When I met with Al Magleby, who was the US Consul General, the highest American official in Okinawa, Al said no other piece of real estate is so strategically important as Okinawa, and he said it was crucial to America's vision and the Asia pivot and American Empire, American forces throughout the Pacific. So he said we're going to fight. We're going to hold this. The Japanese government is supporting the US base relocation. Okinawa reverted officially from American control to Japanese control in 1972, but it has never been able to exercise its democratic rights. [4]

To contrast the case of Okinawa with what happened in Ukraine and Crimea in 2014, one just has to imagine how America would have reacted if the Hatoyama administration had come to power not in a legitimate election but in a coup that arose out of street demonstrations financed and encouraged by Russian diplomats and "NGOs" that were there ostensibly to "promote democracy." Imagine Russian diplomats in Tokyo coming out

to encourage protesters, or the Russian president counseling the Japanese government to show restraint while people were being killed in the streets. Under threat of having its military bases entirely ejected from Japanese territory, how would America rationalize its sudden need to seize Okinawa? Like Crimea is for Russia, Okinawa is considered an indispensable strategic military asset, but unlike Crimea is for Russia, Okinawa has no majority ethnic American population that would vote to join America in a referendum, no cultural heritage or linguistic heritage connected to America, and it is 10,000 kilometers away from the nearest American city (which, by the way, is not Honolulu, capital city of the Kingdom of Hawai'i, illegally annexed in 1898 and occupied ever since).

Notes

[1] Robbie Martin, "Neocons for Hillary: Obama 'Doesn't Want Nuclear War,'" *Mediaroots.org*, July 24, 2016, http://mediaroots.org/exclusive-obama-doesnt-want-nuclear-war-neocons-for-hillary/.

[2] Putin's Warning: Full Speech. Vladimir Putin speaking to journalists of the world's leading news agencies on the sidelines of the 20th St. Petersburg International Economic Forum (SPIEF 2016), June 17, 2016, https://www.youtube.com/watch?v=kqD8lIdIMRo.

[3] America Relies on War for Jobs? *Valdai Discussion Club*, October 19-22, 2015, https://www.youtube.com/watch?v=VdypP11X2P8.

[4] Abby Martin (interviewer, creator), "Imperial Japan, the Bomb & the Pacific Powder Keg," *The Empire Files*, Episode 30, June 27, 2016, https://www.youtube.com/watch?v=d4aLVdJRQdA.

29. Politics and the English Language in Hiroshima and Annapolis: The Obama Doctrine as Revealed in Two Speeches on May 27th, 2016

In our time, political speech and writing are largely the defense of the indefensible. Things like the continuance of British rule in India, the Russian purges and deportations, the dropping of the atom bombs on Japan, can indeed be defended, but only by arguments which are too brutal for most people to face, and which do not square with the professed aims of political parties. Thus political language has to consist largely of euphemism, question-begging and sheer cloudy vagueness.
- George Orwell [1]

On May 27, 2016, US president Barack Obama spoke in Hiroshima and declared, "…today the children of this city will go through their day in peace." This statement could be taken as a reminder of a precious achievement, but it also implied that in spite of the horror of the attack, it had been necessary. It seems as if the president wanted to remind the world, in a lightly threatening manner, that America brought peace to the conquered. However, this point and others made in the speech were so vague that it could be used as a Rorschach test. It said nothing. It was a canvas onto which listeners could paint whatever impression they wished. If you think it was an apology, or not, and that makes you happy or sad, then good for you.

Nonetheless, the careful word choices within the speech achieve a certain purpose that is far removed from being the apology that so much of the American public feared the president would make.

It's worth comparing Barack Obama's Hiroshima statement with a speech that was made on the same day by his defense secretary, Ashton Carter. Carter spelled out the specifics of the Obama Doctrine much

more clearly than his boss did in Hiroshima. In that speech, the world was indeed told we must be grateful for and accepting of the "security" that America provides. You could almost say this is the real "Hiroshima Statement" because it reveals why President Obama has done nothing to move the world toward the abolition of nuclear weapons. Carter's speech contained plenty of talk about Chinese, Iranian, and Russian "aggression," the technological superiority of American military technology, the military empire backing up free trade agreements, and the "security" the world receives from America ensuring that the "bad guys" obey international law.

A careful analysis of these two speeches illustrates how they reveal the radical changes that are needed to achieve nuclear disarmament.

President Obama's Hiroshima Statement

Barack Obama's preference for abstract nouns, intransitive verbs, and passive voice constructions serves to make this speech not only a non-apology but also a deflection of attention away from the nation and the individuals who attacked Hiroshima and Nagasaki with nuclear weapons.

The speech begins with these words:

> Seventy-one years ago, on a bright cloudless morning, death fell from the sky and the world was changed. A flash of light and a wall of fire destroyed a city and demonstrated that mankind possessed the means to destroy itself. Why do we come to this place, to Hiroshima? We come to ponder a terrible force unleashed in a not-so-distant past. We come to mourn the dead, including over 100,000 Japanese men, women and children, thousands of Koreans, a dozen Americans held prisoner. Their souls speak to us. They ask us to look inward, to take stock of who we are and what we might become. [2]

A brief analysis of just a few parts of this passage reveals much about what is achieved by syntactical choices:

1. "Death fell from the sky."

Here Barack Obama uses an abstract noun (*death*) to serve as the subject of an intransitive verb (*fall*). The word choices and the syntactical choices serve to depersonalize what occurred. An intransitive verb has no direct object, no target for its action. The human agents causing death are left unmentioned. For a quite different effect, one could describe the

same event with a sentence that has the more common **S**ubject - **V**erb - **D**irect **O**bject - **I**ndirect **O**bject construction:

Alternative:
S *[A US Air Force crew]* ***V*** *[attacked]* ***DO*** *[the civilian population of Hiroshima]* ***IO*** *[with an atomic bomb.]*

2. "The world was changed."

Barack Obama uses the passive voice here, which is another syntactical choice that serves to depersonalize events and remove human agency from them. One could imagine a sentence in active voice, with the same **S**ubject-**V**erb-**D**irect **O**bject-**I**ndirect **O**bject as above:

Alternative:
S *[American military and political leaders]* ***V*** *[changed]* ***DO*** *[the world]****IO*** *[with their decision to make atomic weapons and use them to attack cities during WWII].*

It is worth noting that the active voice SVO word order is the standard default setting of sentences in the English language. Children acquire this simple pattern first, and textbooks for foreign language learners begin with it. When people are speaking in a way that strenuously avoids the default setting, listeners can begin to suspect that the speaker is actively concealing meaning and motive. The politician's classic admission that "mistakes were made" is a signal of an intention to bury the truth and deflect attention from who was actually responsible for the mistakes.

3. "A flash of light and a wall of fire destroyed a city and demonstrated that mankind possessed the means to destroy itself."

Again, Barack Obama depersonalizes the event and removes human agency from it. The agent of destruction, the subject of the verb, was not human. It was *a flash of light and a wall of fire*. After this, a human agent is mentioned for the first time, but it is not specific individuals or governments. The human beings who bore responsibility for this act are abstracted as now being all of mankind.

Alternative:

The scientists and the generals who made the atomic bombs, as well as the president who authorized their use, knew that the flash of light and wall of fire would demonstrate that America now possessed the means to destroy mankind.

4. "Why do we come to this place, to Hiroshima?"

Personal pronouns, such as "we" and "us" are usually used to refer to persons previously mentioned or known implicitly in the context of the words spoken. In this speech, the listener is never told who "we" are. Does the first person plural pronoun refer to the people gathered in the park that day? Is Barack Obama speaking for all Americans? He seems to be implying that "we" refers to all of humanity, but he leaves this matter unspecified. This reference to an unspecified "we" is also a common rhetorical device in Christian sermons, so it is interesting to note its use here in another genre—a speech by a head of state. This mixing of genres is a curious thing about political discourse in modern times. The president is a comedian on late-night talk shows or when he addresses the annual White House Correspondents Dinner (cracking jokes at the 2010 event about drone warfare), [3] and he speaks like a preacher in Hiroshima. Secretary Carter, in his speech (discussed below), talks like a salesman.

Alternative:
Why did I, the president of the United States, come to Hiroshima?

5. "We come to ponder a terrible force unleashed in a not-so-distant past."

In this sentence Barack Obama uses the passive voice ("force [which was] unleashed") to depersonalize the event, to avoid mentioning who unleashed the "terrible force." This term "terrible force" is also a vague way to avoid describing what actually occurred.

Alternative:
American forces attacked Hiroshima with a new weapon of mass destruction which struck the civilian population with unprecedented blast forces, the heat of the sun, blinding light, and deadly radiation.

The rest of the speech goes on in the same manner. As a result, the speech was not only the expected avoidance of apology. Barack Obama's

words actually served to exculpate the people who carried out the attacks on Hiroshima and Nagasaki. The speech shifts responsibility for the attacks onto all of humanity. The perpetrators of the attacks are identified now as "mankind" and "humanity," and likewise it is mankind and humanity who are supposed to somehow, with no specific initiative by political leaders, find a way to rid the world of nuclear weapons.

This shifting of responsibility begs the question of why President Obama himself could not have taken this moment to announce a specific proposal for new disarmament talks with Russian president Vladimir Putin. There is no other place to start in nuclear disarmament except with the two nuclear powers who possess about 93% of the weapons. However, in all the media coverage given to President Obama's Hiroshima statement evincing wistful hopes for a nuclear-free world, there were few explanations of the stalled progress in negotiations between the two nuclear superpowers.

A general opinion seems to have formed that this lack of progress is due to a vague and lamentable tendency of nations to mistrust one another and cling to the status quo. It's all just some darned "problem of humanity" floating far above our heads. Gosh, what can be done about this? Somebody must do something.

The public is never told exactly what concessions might be necessary to make Russia and the United States capable of negotiating the reduction of their nuclear arsenals. A fact that is unmentioned by many observers is that Russia's preconditions for disarmament talks would have little to do with nuclear weapons themselves. The first step would require the United States to radically shrink its global empire and abandon its role as the leader of a unipolar world order. It would also have to undo the damage caused by the eastward expansion of NATO since the collapse of the USSR. That is the starting point for Russia, but the United States government cannot allow such issues to be even contemplated, so the American side blames the lack of progress on Russia's refusal to accept American dominance, which is not expressed as such but rather, euphemistically, as a need to commit to, in Ashton Carter's words, "an inclusive, principled future." [4]

Nuclear disarmament is frozen in its tracks because America is blinded by its inability to understand other world views and to empathize with the concerns of other nations. It cannot contemplate the reality that much of the global population has a negative view of the past century of American hegemony. America looks out on the world and sees only three challenges: (1) terrorists and members of an evil axis of long-term enemies, (2) cooperative allies who must be grateful for the security given to them, and (3) difficult frenemies who are pursuing paths of ultimate "isolation" from

the benevolence of the unipolar world order. America cannot acknowledge the perspectives of other nations that would prefer to negotiate an alternative path. In addition, America cannot see the ambivalence and resentment of even its cooperative allies, such as South Korea and Japan. Viewing the world from the other's perspective would lead to thinking unthinkable thoughts in the halls of power in Washington.

At the time of Barack Obama's speech in Hiroshima, one could not ignore the backdrop of the American presidential election campaign that was unfolding at the time. The mainstream political establishment of both the Republican and Democratic parties haughtily dismissed Donald Trump as a dangerous narcissist who was utterly unfit to be president. [5] However, a president with a bona fide narcissistic personality disorder is exactly what one should expect to emerge on the American political scene as the offspring of the Democrat-Republican duopoly. "The Donald" is their problem child, the big man-baby that has been gestating in America's belly over the last century. Just imagine that a nation's behavior and personality could be viewed as those of an individual. According to the American Psychiatric Association, a narcissistic personality disorder is "a pattern of grandiosity, need for admiration, and lack of empathy." The Association suggests that this particular disorder is indicated by demonstrating five or more of the following behaviors:

1. Has a grandiose sense of self-importance (e.g., exaggerates achievements and talents, expects to be recognized as superior without commensurate achievements).
2. Is preoccupied with fantasies of unlimited success, power, brilliance, beauty, or ideal love.
3. Believes that he or she is "special" and unique and can only be understood by, or should associate with, other special or high-status people (or institutions).
4. Requires excessive admiration.
5. Has a sense of entitlement (i.e., unreasonable expectations of especially favorable treatment or automatic compliance with his or her expectations).
6. Is interpersonally exploitative (i.e., takes advantage of others to achieve his or her own ends).
7. Lacks empathy: is unwilling to recognize or identify with the feelings and needs of others.
8. Is often envious of others or believes that others are envious of him or her.

9. Shows arrogant, haughty behaviors or attitudes. [6]

One can look back at the American century and see all of these traits in various American exploits around the globe, and in the way American leaders still speak of their role in the world.

The Secretary of Defense Articulates the Obama Doctrine

On the same day that the president gave his speech in Hiroshima, his secretary of defense, Ashton Carter, was delivering a commencement speech to the graduating officers at the Annapolis Naval Academy. Barack Obama doesn't like to explicitly describe the doctrine of his administration. He gave the fuzzy, aspirational speech in Hiroshima while he let Ashton Carter spell out what his doctrine is really all about. Considering the coincidental timing of the two speeches, both of them should be displayed side by side in the Hiroshima Peace Memorial Museum for future generations to ponder.

Carter's speech was soaked in examples of the above-described narcissism. He tells the graduating class, "… the United States remains the security partner of choice in the Asia-Pacific and around the world," for a growing circle of allies and "partners." Yes, he said "security partner of choice," as if he were a marketing man selling weapons down at the mall to nations shopping for "all their security needs." He says this shortly after he has told the graduating officers that almost the entire Asian continent is not buying the goods, as many nations on the continent (Russia, Iran, North Korea and China) are behaving "aggressively" and bringing a historic change that the new officers will have to "manage." [7]

Shortly after the speech, Chinese Foreign Ministry spokeswoman Hua Chunying responded to Carter's speech, saying his remarks "laid bare the stereotypical US thinking and US hegemony," and that "China has no interest in any form of Cold War, nor are we interested in playing a role in a Hollywood movie written and directed by certain US military officials. However, China has no fear of and will counter any actions that threaten and undermine China's sovereignty and security." [8]

Throughout Carter's speech, one can note the terminology that seems borrowed from a stockholders' meeting, but then this speech actually is part of a sales campaign for the military industry. Journalist Patrick L. Smith observes that Carter was previously the Pentagon's Undersecretary of Defense for Acquisition, Technology and Logistics—in other words, in charge of procurement—and he asks, "How wrong is it to give someone previously assigned to shopping among the defense contractors the power

to set policy?" He adds:

> Conflict of interest is woven into everything Ash Carter does. In this respect, his appointment as Secretary of Defense suggests something very disturbing about the true locus of power among those now setting foreign policy in Washington… He is versed in method, not purpose. Nobody with even a slight grasp of China and Asian history—or history in general—could possibly stand on an aircraft carrier in the middle of a locally conflicted region [Southeast China coastal region] and say the things Carter did last month. He evinces no sense of his own recklessness. [9]

Later in the speech, Carter puts a soothing gloss on all that America has done over the last century. While President Obama landed in Japan just in time to face the rage of Okinawans dealing with another murder by an American soldier, Carter told the soldiers, "… you're respectful of other people, and they—militaries and citizens of countries around the world with whom we partner and fight—appreciate how you conduct yourselves. They've learned that you're there not to intimidate, coerce, or exclude, but instead that you inspire, cooperate, and include."

All of this was uttered in total obliviousness to the fact that billions of people throughout the world would be appalled by these words. They have a very different view of American interventions, and of how much America respects international law or seeks win-win solutions. No matter how many wonderful, well-intentioned people there are in the US military, their presence in foreign lands will always be problematic.

Carter was also oblivious to the problem created by America's superior military capabilities, which no other nation can approach. He boasted of this disparity, unaware, it seems, that it fills other nations with dread and forces them to pursue nuclear deterrents and asymmetric strategies. The imbalance actually makes the world less secure.

Carter's speech required no evidence and allowed no counter-arguments. It was less abstract than the president's speech, but he didn't have to worry about the sensitivities of the place where he was speaking. His speech was meant to indoctrinate an unquestioning class of military graduates, to send them out into the world, obediently following orders. The historian and West Point graduate, Andrew Bacevich, spoke of this indoctrination process in a recent interview:

> From my upbringing, and I think notably from attendance at the

> Military Academy [West Point], I was shaped by some powerful forces to accept a very particular worldview. I've come to believe that the Military Academy doesn't educate. It socializes. It forms people. And maybe it should. Because it exists to prepare people to be servants of the state, as military officers.
>
> So I came out of there and spent most of my time in the Army, and it took me a long time to recognize the extent to which I'd been socialized, and to come to appreciate that there were alternative perspectives. It really took getting out of the Army and distancing myself from an institution that had been my life. I needed that distance to begin to think critically about a wide variety of matters: America's role in the world, America's sense of itself, the record of U.S. involvement in parts of the world, particularly in the period that I, myself, had existed in during the late Cold War and then into the post-Cold War period…
>
> I'm appalled by my naïveté, my inability to ask some pretty obvious questions that should have been obvious at the time, my willingness to sort of go along. But again, we don't want military officers to think that they are policymakers. We want military officers to be loyal servants of the state, and that's what I was for a period of time. [10]

Many people who specialize in nuclear disarmament have failed to address the fact that the American Empire is the elephant in the room that is impeding all progress. Nuclear disarmament begins on the path from Washington to Moscow, and nothing is going to happen until the disparity in conventional military and economic power is addressed to Moscow's satisfaction. America has done numerous things to erode Russia's trust, and it will take a lot of work to win it back. First there was America's triumphalist attitude about having won the Cold War, followed by the economic shock doctrine imposed in the 1990s, along with the expansion of NATO up to Russia's borders. Finally, America orchestrated a pro-Western coup in Ukraine, slapped economic sanctions on Russia (breaking WTO agreements that Russia had signed onto), then it demonized Russia for its predictable reaction.

Mikhail Gorbachev, a critic of many aspects of Putin's leadership, has left his strongest criticisms for the way American foreign policy has betrayed the promises of Reagan-Gorbachev summits that ended the Cold War. He declared in 2016, "All of the attempts to resolve the

numerous conflicts of the previous two decades militarily have solved no real problems, and only led to the erosion of international law and the glorification of force." [11]

Around the same time, Germany has downgraded Russia from "partner" to "security challenge" because Moscow was alleged to have used hybrid instruments to blur the boundaries between war and peace and undermine other states, and is influencing global public opinion through traditional outlets and social media (as if no other government ever attempted to manipulate the mass media). [12] I declare here that some of the sources cited herein may be those media outlets that displease Germany, but again, this is an example of a Western government's blindness to its own actions. The problem for the West seems to be not that Russia engages in public relations, but that it has been successful in presenting the world with a convincing alternative view of what lies behind the conflicts in Syria and Ukraine, as well as other global tensions.

This horribly degraded relationship between the USA and Russia must force nuclear disarmament activists to broaden their scope of concerns. One can say that nuclear weapons are stupid, useless, wasteful, too dangerous to possess, too dangerous to ever use, and so on, but we have to ask what happens when they're gone. In the absence of nuclear deterrence, only America would be secure with its overwhelming advantage in conventional military capacity. In a new period of insecurity, the nuclear arms race would immediately be replaced with a conventional arms race and probably much bolder adventurism on the part of America.

The problem remains essentially what it was in 1955, when Bertrand Russell and Albert Einstein wrote in their famous manifesto, "Although an agreement to renounce nuclear weapons as part of a general reduction of armaments would not afford an ultimate solution, it would serve certain important purposes." A footnote called for this to be a "concomitant balanced reduction of all armaments." The manifesto seemed to assume that nuclear weapons were here to stay and would inevitably be used in war, so the more urgent issue was for nations to accept "distasteful limitations of national sovereignty" and "find peaceful means for the settlement of all matters of dispute between them." [13] They wrote the manifesto to launch the Pugwash Conference, which was awarded the Nobel Peace Prize in 1995 in recognition of its mission to "diminish the part played by nuclear arms in international politics and, in the longer run, to eliminate such arms." [14]

Thus one could conclude that nuclear disarmament groups, usually focused on a single issue, are themselves part of the problem they wish

to eliminate. They need to expand their goals, and rename and rebrand themselves. They need to engage with geopolitics, economics, ideology, peace studies, history, international law, and environmental justice; in short, every global problem needs to be addressed on the way to nuclear disarmament. I have the impression that Henry Kissinger, a supporter of the Global Zero campaign, wouldn't agree that radical solutions challenging American supremacy are necessary, but the example of his being a nuclear disarmament activist makes my point. [15] It seems logical to get rid of the most terrifying weapons first, but it may be wiser to start by working on radical reform of international relations and to start questioning our basic assumptions about how and by whom the world should be ruled.

Notes

[1] George Orwell, "Politics and the English Language," first published in the journal *Horizon* (volume 13, issue 76, pages 252-265) and since then widely reproduced.

[2] The full text of President Obama's speech appeared on page A8 of the May 28, 2016 edition of the *New York Times*, headlined, "The Memory of the Morning of Aug. 6, 1945 Must Never Fade." The online version of the article, at nytimes.com, is dated May 27, 2016, and headlined, "Text of President Obama's Speech in Hiroshima, Japan," https://www.nytimes.com/2016/05/28/world/asia/text-of-president-obamas-speech-in-hiroshima-japan.html.

[3] Max Fisher, "Obama Finds Predator Drones Hilarious," *Atlantic*, May 5, 2010, https://www.theatlantic.com/international/archive/2010/05/obama-finds-predator-drones-hilarious/340949/.

[4] Ashton Carter, "Full transcript: Secretary of Defense Ash Carter's Naval Academy commencement address," *Capital Gazette*, May 27, 2016, http://www.capitalgazette.com/news/naval_academy/cgnews-full-transcript-secretary-of-defense-ash-carter-s-naval-academy-commencement-address-20160527-story.html.

[5] Richard North Patterson, "Too Sick To Lead: The Lethal Personality Disorder Of Donald Trump," *Huffington Post*, June 3, 2016, https://www.huffingtonpost.com/richard-north-patterson/too-sick-to-lead-the-leth_b_10086768.html.

[6] American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (*DSM-5*) (Washington: American Psychiatric Publishing, 2013).

[7] Ashton Carter, *Capital Gazette*.

[8] "'Stuck in Cold War': Beijing says won't play role in Hollywood-style movie directed by US military," *Russia Today*, May 30, 2016, https://www.rt.com/news/344850-us-china-cold-war/.

[9] Patrick L. Smith, "The Defense Department is ruining America: Big budgets, militarization and the real story behind our Asia pivot," *Salon*, May 29, 2016. https://www.salon.com/2016/05/28/the_defense_department_is_ruining_america_big_budgets_militarization_and_the_real_story_behind_our_asia_pivot/.

[10] Patrick L. Smith, "'This will stop only when the American people get fed up': American exceptionalism, the New York Times, and our foreign policy after Barack Obama," *Salon*, May 22, 2016. https://www.salon.com/2016/05/22/this_will_stop_only_when_the_american_people_get_fed_up_american_exceptionalism_the_new_york_times_and_our_foreign_policy_after_barack_obama/.

[11] "Gorbachev warns world of 'cult of force,' says all recent conflicts could have had peaceful solution," *Russia Today*, June 3, 2016, https://www.rt.com/news/345374-gorbachev-world-leaders-biggest-mistake/.

[12] "From partner to rival: Germany to designate Russia 'a security challenge'—report," *Russia Today*, June 5, 2016, https://www.rt.com/news/345466-germany-security-challenges-russia/.

[13] *The Russell Einstein Manifesto*, Pugwash Conferences on Science and World Affairs,

July 9, 1955. The same notion about the necessary surrender of sovereignty appeared four years earlier in the science fiction film *The Day the Earth Stood Still*, in the words of the alien visitor.

[14] "Oslo Award of the Nobel Peace Prize," Pugwash Conferences on Science and World Affairs, December 10, 1995.

[15] "Realist 'Four Horsemen' Challenge Obama, Other 'Global Zero' Advocates to Abandon US Denuclearization," Center for Security Policy, April 1, 2013, https://www.centerforsecuritypolicy.org/2013/04/01/realist-four-horsemen-challenge-obama-other-global-zero-advocates-to-abandon-us-denuclearization/.
The authors of this press release agree with the point I make about the elder statesmen supporting Global Zero, but draw different conclusions. They perceive that nuclear arsenal reductions would threaten the American global security regime that provides American security and a nuclear umbrella to allies, so they argue against a "naïve" nuclear reduction plan, whether it involves unilateral or negotiated reductions.

30. Lightening up on Dark Tourism: Nagasaki, August 9, 2016

"I see those people from Hiroshima and Nagasaki on the news every year and I wonder why they just can't let it go. Hasn't it been long enough already?"

These words were spoken to my wife recently by a Japanese co-worker when we returned from Nagasaki. This attitude might seem startling to peace activists in Japan and throughout the world who participate in memorial events every year on August 6th and 9th, but it is a sobering reminder that many people in Japan and throughout the world have let the memory fade, not even knowing what they don't know about the perils of nuclear weapons as they exist in today's world.

In a consumer society based on employment in a military economy, the institutions people pass through in their formative years do very little to teach history, political consciousness or the meaning of citizenship. Whatever lessons exist are delivered as tedious, obligatory lectures, followed by multiple choice tests. Lessons might also have come from elders in the form of scoldings about how tough things were during the war, how "you youngsters" have no idea and so on. The only thing worse than no history lessons is bad history lessons. Japanese people, in particular, may be inured to them because of an overdose of obligatory exposure to the rituals of remembrance.

Hiroshima and Nagasaki also invoke uncomfortable feelings of shame about losing the war, and shame about responsibility for it. The hibakusha and all the memorials in the two bombed cities evoke these conflicted feelings, so many Japanese would rather turn away, just as many Americans would rather turn away for inverse reasons.

While living in Japan I have met people who talked about visiting Hiroshima and Nagasaki, but they never mentioned the atom bomb. The only thing they wanted to talk about was the local foods they ate, or maybe a visit to Dejima, the old Dutch and Portuguese trading post in Nagasaki

that used to be the most famous thing about the city. They talked about these visits like they would talk about a visit to any other place. Likewise, residents of the two cities have millions of good reasons to appreciate everything that happened before the war and after it, all the things that make their cities just like other cities. No one wants their city to be just about that one traumatic thing that happened one day long ago.

I had lived in Japan for many years before I visited either Hiroshima or Nagasaki, partly because I had other priorities, and partly because it just felt a little strange to visit a place just for that. I knew the history quite well, but I still questioned my motives. I finally went when I had someone to visit there, someone who just happened to be a historian who specialized in the cultural impacts of nuclear technology.

That was Robert Jacobs, who was interviewed on a local Hiroshima English language podcast shortly after President Obama's visit to Hiroshima on May 27, 2016. During the interview he shed some light on why people are becoming less reluctant to visit traumatized places and engage in what has recently become known as "dark tourism:"

> I met a religious studies scholar… who said… dark tourism has replaced religious pilgrimage... Going to places where history happened, especially traumatic history happened… gives your life more authenticity... This has been on the rise, and it's partly a way to infuse our lives with meaning and connection to a world that is often at a distance from us… to infuse your own life with a deeper sense of the importance of peace because you've been to some place where peace is so important. It's an emotional and a spiritual renewal to go to places like that, and the use of the word "dark" doesn't mean that there is a dark meaning. It just means that it's sites of historical trauma. People go there not to gawk at trauma or death but because these are the sites that resonate in our mythology of the world we live in. Religious sites don't resonate so much the way that they used to, but people like to visit places that give their lives a sense of being connected to mythic things. In our lives the mythic things are often large historical tragedies, and in coming to a place like Hiroshima... "dark" just implies a place where a dark thing happened, but the motives of the people who come here is to increase their sense of connectedness and their sense of meaning... People will invoke having been to Hiroshima as a means of having authority. They will say, "I've been to Hiroshima… I can tell you about how bad nuclear weapons are..." These are empowering reasons that people visit… The phrase

> "dark tourism" certainly doesn't imply that the motives of people are in any way dark. [1]

There could be a downside to claiming authority just because one has visited a place where something bad happened. It depends on what one learns about the entire context of the traumatic event. Visitors to Hiroshima could leave with widely divergent interpretations of what happened there in 1945. In the end there is much to be said for a pilgrimage to a local library in order to connect and infuse one's life with a deeper connection to history.

I can say that my visits to Hiroshima and Nagasaki achieved something that was missing in all that I knew about what happened there in August 1945. No matter how much I had learned from books and films and second-hand reports, it didn't become fully real in a certain sense until I could confirm it with my own senses, when I stood at ground zero, walked through the cities, visited the museums, and talked to eyewitnesses to the events. That's what is meant by "connection."

One of the great things about both cities is the streetcars. They still run down the routes that existed in 1945, and though they must have been rebuilt and refurbished many times since then, they haven't been modernized. They look, and feel, and sound just like the streetcars of old, and they are the means by which most visitors get from the central train stations to the atomic bomb memorial sites.

On August 8th I rode the streetcar in Nagasaki with my wife and son, from downtown to the Urakami district where the museum and hypocenter are located. As we got closer the streetcar became very crowded, as groups of students were in town to attend the annual memorial the next day. I was standing, and my wife and son were sitting. A white-haired woman in her late eighties got on. She was stooping over a cane, but she pushed her way through the crowded aisle with considerable force. I tapped my son and told him to give up his seat. She took it with quick smile of gratitude then immediately began to talk to my wife:

> Everyone's going to the Peace Park today. That's good. Good to see so many young people here… I wasn't here that day. I was living down the line in Sasebo, but I had been called up to work in a factory here. For some reason I didn't have to go to work that day. But then later I was told to get to Nagasaki and report for work. I got down to Sasebo station, and when that train from Nagasaki came in, people just fell out of it and collapsed right there on the platform, never got up again. Piles of them, blackened and sick. They just spilled out of the

> train car. I've never seen people in such a horrid state. Every city was getting bombed. We expected it, but obviously something very strange had happened in Nagasaki. I didn't ride the train that day, but I went later… Sorry, I'm talking a lot, but I have to. Tomorrow the prime minister will come and make his speech again. So useless. We are really disappointed in him. I never used to talk to strangers like this, but now I talk to everyone because we have to. There are so few of us left.

Obviously, this is a translation and a paraphrase of a conversation recalled by my wife and related to me when we got off the streetcar. The reader may think I've embellished it, but this was the gist of it: the determination to tell the story, the need to condemn the present direction of the country, and thus the loss of all concern about what anyone might think about the unsolicited sharing of these stories with strangers on a streetcar. Looking back on it now, it seems to be the best way to explain to that smug, ignorant co-worker why people can't and don't have to "just get over it." The experience also taught me why people should dare to be "dark tourists" and take in everything they see and hear when they visit places of historical trauma, whether it's Auschwitz, Hiroshima or Wounded Knee. In this case, there was nothing like getting the story firsthand on a Nagasaki streetcar.

Our short visit to the city had other highlights. I was invited to join a study tour led by the historian of American University, Peter Kuznick (co-author of *The Untold History of the United States*), and there I met his students and others from Kyoto's Ritsumeikan University. A famous spokesperson for the *hibakusha* community was also there, 71-year-old Koko Tanimoto Kondo, who has devoted her life to speaking about the atomic bombings in both Japanese and English. Her father was Reverend Kiyoshi Tanimoto, [2] a Methodist minister who was portrayed in John Hersey's *Hiroshima*, the first report that exposed American audiences to the horror of what had happened on the ground on August 6th, 1945. [3][4] Reverend Tanimoto began a campaign to have nations dedicate August 6th as World Peace Day, and Koko, who was only eight months old at the end of the war, continued her father's mission as she grew older.

Another *hibakusha*, Kazutoshi Otsuka, spoke to the study group about the life he has devoted to telling the world about the necessity of abolishing nuclear weapons. He was ten years old at the time of the blast, and survived because he was at the edge of the zone of worst damage and was indoors at the time. He emerged from the debris that had fallen over him to find the city in ruins, utterly transformed from what it had been just a short

time ago. The downtown area had been spared, but in Urakami almost all the buildings and thousands of people had just vanished. The last human voice he heard before the blast was his friend calling from outside, "The cicadas are singing. Let's go catch some." Did he die instantly in the blast? Did he run home and get caught in the fires? Did he die more slowly from radiation? Mr. Otsuka searched for his friend for a long time afterward, but it became obvious that he had vanished on the wind just like the last words he had spoken. For seventy-one years, while he has told his story to all who will listen, Mr. Otsuka has carried with him those simple words of invitation from his friend to enjoy a summer day.

The most famous icon of the atomic attacks is the Hiroshima Dome, one of the few structures left standing, but one which was almost demolished in the rush to rebuild the city and erase all signs of what had happened there. Those who wanted it saved had a hard time convincing city hall that it would be worthwhile to preserve it. There is nothing similar in Nagasaki, except for some portions of the walls of Shiroyama Elementary School near the hypocenter. Like the dome in Hiroshima, its position directly under the blast allowed it to be not completely demolished by the lateral blast force. After the fires were out, the remnants of the school on a small hill stood as the only desolate reminder of all that had been in this section of the city called Urakami. However, it wasn't as photogenic as the Hiroshima Dome, and Nagasaki is more out of the way and receives fewer visitors, so it never became an iconic symbol of the atom bomb. In any case, the rebuilt school still functions as a school, so it wouldn't be able to deal with a constant stream of visitors.

We learned that every year on August 9th the school holds a remembrance ceremony for students, the community, and any visitors who wish to attend. The students all come back for a day from their summer vacations and dress up in formal attire in the 30-degree humidity. It is a mourning ceremony, so the adults wear black funeral suits and dresses.

My wife and I decided to get up early on the 9th and take our son to the ceremony. We had attended many Japanese school ceremonies with our children before, and this one was just like all the rest, but so different from all others as well.

A steep staircase leads up to the school, and Koko Tanimoto was already there at the top, beaming a welcoming smile to us. There was something from her father in that smile because she made it feel like we were being welcomed to church on a Sunday morning. We walked around the grounds and looked inside the restored section that holds artifacts and memorials for the disappeared. In a grove of trees just off the sports ground

they still sometimes find bone chips a few inches down in the soil.

In his speech at the ceremony, the principal said everything one would expect at such an occasion, going over the events of that day and the weeks and months that followed, and the eventual rebuilding of the school and the city. Several times he mentioned "passing the baton," stressing to the children their heavy responsibility to carry on the memory that all other graduates of the school have carried into their adult lives.

Around the third time I heard that word *baton*, I began to feel uneasy about it. I started to wonder how many people had gone through that school wondering "Why us?" They didn't drop the bomb. They didn't ask for this burden, and they must wonder why the whole country and the whole world is not doing more to pass this baton to future generations. I didn't visit Hiroshima and Nagasaki, or make friends in the peace movement, suffering from any delusions that it is easy to change the world. I think most of my fellow travelers and the *hibakusha* feel the same. We know what we are up against, and we know how badly the masters of war have betrayed us. The *hibakusha's* commitment to peace makes for a paradoxical taboo against expressing anger and rage, but I suspect the survivors have reached old age bitterly aware that the world has done far too little to act on their call for the elimination of nuclear weapons. It must feel like cruel mockery as they reach their later years. There were many hopeful periods, such as the thaw between Khrushchev and Kennedy that was emerging just before JFK's assassination, or the end of the Warsaw Pact in the late 1980s, but each time, to borrow a line from Leonard Cohen, the holy dove was caught again, bought and sold, and bought again. [5]

There must have been very many angry *hibakusha* over the decades, people who kept their rage contained within them, people who drank, people who became outcasts or extremists, but the openly angry people never got invited to official ceremonies. One can only speculate about the motives of the anonymous person who threatened to bomb Shiroyama Elementary School and other schools in Nagasaki in August 2016 (at least there was an advance warning), but it speaks to a very perverse disdain that exists in some people toward the victims rather than the perpetrators. [6]

Overt anger has been kept out of sight, but an acceptable outlet for covert anger is mainstream politics, where those in the ruling party dream of restoring the glory of the empire and their notion of "national honor" while accumulating plutonium from "the peaceful atom" and biding their time under American subservience. This is how contemporary Japanese society developed its neurotic ambivalence about its history and place in the world.

The various forms of anger have been reported by other writers who know the experiences of *hibakusha* well. Shortly after President Obama's speech in Hiroshima, the journalist and filmmaker John Pilger had this to say:

> … the cynicism of great power and great reckless power, in many respects is expressed at Hiroshima where… all the evidence shows that both Hiroshima and Nagasaki were sacrificed as America's first expressions of violent power in the Cold War that was then underway. So for Obama to go and talk about the atomic bombs as if God dropped them... He used the passive voice… and really quite vomitus language like "we must have the courage to care." So [according to Obama] no one dropped the atomic bombs. The United States certainly didn't kill all those hundreds of thousands of people. It didn't cause all that suffering. It's something that we should all express sympathy to. It was like a kind of high mass and the great divinity was there, but not the United States. That [the US] is not to blame. That's been Obama's role as a PR man extraordinaire, and he came into power and people fell on their knees… This was a kind of second coming. There was a problem for the last few years with re-igniting Afghanistan and Iraq, and destroying Libya and so on, but the fawning has begun again as Obama's time in office nears an end, and for people, for journalists to report—as I say, the deeply cynical action of Obama and the United States in Hiroshima the other day—to report it without the context of all those survivors—and I've interviewed many of them—of how angry they were… They're polite people and they're very elderly… but they were angry. [7]

Two months later *The Mainichi* reported more precisely on this anger in describing how the secretary-general of the Japan Confederation of A-and H-Bomb Sufferers Organizations regretted his initial praise of Obama's speech when he had time to read an accurate translation the next day:

> Terumi Tanaka, 84, was in attendance on May 27 this year when Obama was making what was the first visit of a sitting U.S. president to Hiroshima…
> There was an interpreter for Obama's speech, but the speech was not handed out on paper… Sentences from the latter part of the speech, such as his reference to a future in which "Hiroshima and Nagasaki

> are known ... as the start of our own moral awakening," had stuck with him, and he praised the sentence as "excellent words." He noted, however, that he was "disappointed" that Obama had said, "We may not realize this goal (of a world without nuclear weapons) in my lifetime." The next morning… Tanaka opened a page containing the Japanese translation of the speech. It began, "Seventy-one years ago, on a bright cloudless morning, death fell from the sky and the world was changed." Tanaka was stunned. "Death did not 'fall from the sky.' This is making the death abstract. This is absolutely unacceptable," Tanaka thought. While on board the train he opened his laptop and began to write his "Essay of Regret." As he typed, erased and retyped, he says, "I began to get angry and stopped midway. They 'created' the death. As a sign of apology, I want them to eliminate nuclear weapons," he says. [8]

Another expression of this anger came from Setsuko Thurlow, *a hibakusha* who has lived for many years in Toronto. She was received at the White House in June, where she met the man who wrote the Hiroshima speech and hand-delivered a message for the president in which she listed the concrete measures that need to be taken to make the speech amount to more than aspirational fluff:

1. Stop the U.S. boycott of international nuclear disarmament meetings and join the 127 countries that have endorsed the Humanitarian Pledge to create a new legal instrument and new norms for a nuclear weapons ban treaty as a first step in their elimination and prohibition.
2. Stop spending money to modernize the US nuclear arsenal, a staggering $1 trillion over the next three decades, and use this money to meet human needs and protect our environment.
3. Take nuclear weapons off high alert and review the aging command and control systems that have been the subject of recent research exposing a culture of neglect and the alarming regularity of accidents involving nuclear weapons. [9]

Much more could be said by the *hibakusha* community about issues not relating directly to nuclear disarmament, such as the worsening mistrust between the nuclear powers and the proliferation of conventional military power that leads so many nations to favor the "cheap and easy" asymmetrical nuclear deterrent. [10] The obstacles to peace are stacked high,

and anger seems to be the only logical response. But I will hold onto the memory of Koko Tanimoto smiling at the top of those stairs at Shiroyama, greeting the late pilgrims like me who've finally decided to make this journey.

Notes

[1] J.J. Walsh, interviewer, "Professor Bo Jacobs on the Obama Visit," *Get Hiroshima*, May 30, 2016, 18:00~, http://gethiroshima.com/features/bojacobs-post-obama-interview/.

[2] "Hiroshima Survivor Meets Enola Gay Pilot," *This is Your Life*, 1955. The full interview with Reverend Tanimoto can be viewed on YouTube, https://www.youtube.com/watch?v=ZZYx4syf2oY.

[3] Robert Jacobs, "Reconstructing the Perpetrator's Soul by Reconstructing the Victim's Body: The Portrayal of the 'Hiroshima Maidens' by the Mainstream Media in the United States," *Intersections: Gender and Sexuality in Asia and the Pacific*, Issue 24, June 2010, http://intersections.anu.edu.au/issue24/jacobs.htm.

[4] Tadatoshi Akiba, L. Wittner and T. Taue, "Why Hiroshima and Nagasaki Day Events Matter," *Asia Pacific Journal*, August 1, 2007, http://apjjf.org/-Tadatoshi-Akiba/2492/article.html.

[5] Leonard Cohen, "Anthem," *The Future*, Columbia Records, 1992.

[6] "'Hibakusha' talks scrapped after Nagasaki bomb threat," *Asahi Shinbun*, August 18, 2016, http://www.asahi.com/ajw/articles/AJ201608180036.html.

[7] Afshin Rattansi, interviewer, "ISIS in Fallujah & World War III with John Pilger (Episode 350 of *Going Underground*)," *Russia Today*, June 4, 2016, https://www.rt.com/shows/going-underground/345405-whistle-blowers-isis-fallujah/.
What John Pilger described as a "passive voice" construction could more accurately be called a usage of an intransitive verb which conceals the agent of the action. The speech writer had various syntactical choices available: *President Truman ordered the bombs to be dropped* or *The crew of the Enola Gay dropped the bomb*, *The bomb fell* or, at the level of greatest possible abstraction, *Death fell from the sky*.

[8] Terumi Tanaka, "Hibakusha: A-bomb sufferers' group official regrets praising Obama speech," *The Mainichi*, August 2, 2016, https://mainichi.jp/english/articles/20160802/p2a/00m/0na/018000c.

[9] *To Barack Obama from Setsuko Thurlow*, International Campaign to Abolish Nuclear Weapons, August 6, 2016, http://www.icanw.org/campaign-news/to-barack-obama-from-setsuko-thurlow/.

[10] Richard Rhodes, *Arsenals of Folly: The Making of the Nuclear Arms Race* (New York: Alfred A. Knopf, 2007), 101. Many who favor nuclear deterrence believe that it has prevented a third world war that would have been fought with a massive arsenal of conventional weapons, with millions of casualties. In this argument, a nuclear arsenal is preferable, and it comes at a bargain price for nations large and small. Rhodes' book argues for abolition of nuclear arms, but he noted how their "low cost" (not considering what economists call "externalities") became a rationale for their development: "Nuclear warheads cost the United States about $250,000 each: less than a fighter bomber, less than a missile, less than a patrol boat, less than a tank."

31. From the Reykjavik Summit to the Soviet breakup, to the New Cold War: Where Are We Now?

Hofdi House, Reykjavik, Iceland, site of the October 1986 summit where Ronald Reagan and Mikhail Gorbachev "looked over the horizon" and saw the possibility of nuclear disarmament. Photo by Laurent Gauthier.

That was then

On October 11-12, 1986, Ronald Reagan and Mikhail Gorbachev met in Iceland for the historic Reykjavik Summit. The standard narrative of the event, established mostly by its participants, tells a tale of diplomatic heroism that failed in the short-term but was soon understood as a heroic breakthrough on the way to the tremendous nuclear arms reductions that followed over the next decade. While these changes were underway, Gorbachev avoided the temptation to use state violence to suppress national

independence movements in the Soviet sphere, and he consistently acted to reform the economic and political system of the USSR. In contrast, the Reagan administration had no intention to look inward at the faults of its own system, no interest in a program of perestroika for capitalism. Reagan cut domestic social programs and weakened worker rights at home, while overseas the government supported dictatorships in order to suppress nationalist movements that wanted land reform and control of natural resources.

In the fall of 2016, there were commemorations in the media of the thirty years since the Reykjavik Summit, and others marking the quarter century since the Soviet Union dissolved on December 25, 1991, but many of these skipped over the wider picture of the Cold War's denouement. Though there was much to applaud in the steps the Reagan administration took to make the world safer from nuclear war, a commemoration of the 1980s disarmament summits must also include the more unsavory record of the era in domains not related to "strategic" weapons.

A standard synopsis of the Reykjavit Summit can be found in *WorldNews Network*'s Reykjavit Summit archive:

> On October 11, 1986, …the leaders of the world's two superpowers met at the stark and picturesque Hofdi House in Reykjavik, Iceland. Secretary General Mikhail Gorbachev had proposed the meeting to President Ronald Reagan less than thirty days before. The expectations for the summit at Reykjavik were low. Reagan and Gorbachev had established a personal relationship just one year before at their Geneva Summit. In Geneva they attempted to reach agreement on bilateral nuclear arms reductions… Both leaders hoped a face-to-face meeting at Reykjavik might revive the negotiations. The talks between Reagan and Gorbachev at Reykjavik proceeded at a breakneck pace... A proposal to eliminate all new strategic missiles grew into a discussion, for the first time in history, of the real possibility of eliminating nuclear weapons forever. Aides to both leaders were shocked by the pace of the discussions. A summit that began with low expectations had blossomed into one of the most dramatic and potentially productive summits of all time… But one point of contention remained. Reagan was committed to see his Strategic Defense Initiative (SDI) to completion. Gorbachev, fearing an imbalance of power, was equally determined to make sure SDI would never be implemented. Reagan offered assurances to Gorbachev that the missile defense shield… was being developed not to gain an advantage, but to offer safety against

> accidents or outlaw nations. Reagan offered many times to share this technology with the Soviets, which Gorbachev refused to believe… Gorbachev would accept continued development of SDI as long as testing was confined to the laboratory for the next ten years. Reagan would not agree... Despite failing… Reykjavik will be recorded as one of the most important summits in history. A year after Reykjavik the U.S. and Soviet Union signed the Intermediate Range Nuclear Forces Treaty (INF), for the first time eliminating an entire class of nuclear weapons. The Strategic Arms Reduction Treaty (START) was signed a few years later during President H.W. Bush's term. None of this progress would have been possible without the courage of two leaders to look beyond past hostilities and forge a new and lasting relationship... [1]

The bromance

Other retrospectives of the 1980s summits described the two leaders as romantics, provincials, and establishment outsiders who rose to power against all odds and were thus able to dream big and achieve what urban elites and sophisticated insiders would never even dare attempt. Indeed it might be helpful to think of the Reykjavik Summit as a specimen of another global menace of the 1980s: the romantic comedy. The story of Ron and Mikhail involves a wacky, mismatched pair who meet up for a dreamy arctic escape, far from the naysayers in Washington and Moscow who would deny them their vision of a nuclear free world. Through the series of summits they had during the late 1980s, the story followed the standard romcom formula (bromance-comedy? bromcom?). They recoiled from each other at first, antagonized each other through Act I and Act II, then grew close in Act III as they came to the end of the their shared political destiny. Or perhaps it's better to call it a buddy/road movie. Instead of *Trains, Planes and Automobiles*, think of it as *Missiles, Bombers and Submarines*. Whatever the correct genre might be, they fought against the opposition of their inner circles, and in spite of the oil-on-water incompatibility of their personalities and intellects, against all odds they triumphed in the end. So the story goes.

"But where is the comedy?" you ask. What's so funny about nuclear disarmament, or peace, love and understanding? First of all, they talked seriously about reducing their arsenals completely while they imagined Britain, China, France, India and Israel would naturally follow their lead, and they were oblivious to the ongoing plans of Iraq, North Korea, South

Africa and Pakistan to become nuclear powers. Somehow it would all just sort itself out. They really got ahead of themselves when they were far away from the madding crowd for this crazy weekend in the far northern latitudes of Iceland.

Throughout the weekend Reagan cracked corny jokes with his team to break the tension, but there was always something a little condescending in the way his inner circle would indulge his sense of humor. One of the unspoken truths held by Reagan administration staff was that the president's knowledge of history and world affairs was so thin that the presidency was essentially a regency, with dozens of Cardinal Richelieus vying for influence in the void. Reagan wouldn't read briefing documents, so the CIA had to make films produced at the level of a middle school documentary to prepare him for trips abroad. When Reagan cracked his jokes, everyone laughed with him. When he was out of the room, they mocked him and worried about his quixotic quest for a nuclear free world. In fact, he was a little like Sancho Panza in a chapter of *Don Quixote* in which he was set up "in a governor's chair" for the amusement of the Washington nobility.

At one point during the weekend in Reykjavik, the American team had to huddle for privacy in a small bathroom of the venue (Hofdi House), with two advisors standing in the bathtub and the regent king "on the throne." Another huddle was done at the American embassy under a small Plexiglas dome that shielded the team from radio waves. Yes, that Cone of Silence in the old *Get Smart* television comedy was based on a real thing. Every embassy had one.

Perhaps the romcom metaphor doesn't pay due respect to the high drama of the occasion. We could also say the story contained all the best elements of Shakespeare: comedy, romance, history and tragedy. All that was missing was the bawdy humor, as the puns would have been lost in the simultaneous translation.

The summit, which was supposed to have been just a preparatory "base camp" on the way to a later summit, hinged on, and failed because of, the American insistence on continuing development of space-based defense, or the Strategic Defense Initiative (SDI, also known as Star Wars). The Soviets had come with a compromise offer. Both sides would completely eliminate nuclear weapons by the end of the century, but SDI would have to be confined to the laboratory for at least ten years. The Americans refused, and the dream of nuclear abolition failed because of this one point on which neither side would yield. It was only after they returned to Moscow that Gorbachev and his advisors remembered that they had a space station already aloft that was called a "space lab," which meant that by definition

"testing in the lab" could be testing in space just as the Americans had wanted. They went back to the Americans with new concessions and negotiated arms reduction treaties, signed in December 1987, to eliminate short and medium range missiles in Europe. Reductions in long range missiles and tactical (battlefield) weapons followed during the presidency of George Bush senior (1989-1992). These steps never led to the total elimination of nuclear weapons, but they defused the Cold War in Europe, especially since they were followed by massive reductions in conventional forces and the independence of the Warsaw Pact nations.

Throughout the arms negotiations of the mid-1980s it was Gorbachev who came wooing, showing more ardor because of his greater need to save the Soviet Union by scaling back the costs of the military industry. Meanwhile, Reagan was surrounded by the anti-communist hardliners of the Committee on the Present Danger (CPD), thirty-one of whom he had appointed to his administration. Some of them continued to serve in the administration of Bush the Elder, laid low during the Clinton presidency, then returned *en force* during the terms of Bush the Younger with a new acronym, perhaps to not remind some of the aging members the CPD of its other meaning: cardio-pulmonary disease. The group was called Project for a New American Century (PNAC). The CPD cautioned Reagan not to "give away the store" in negotiations with Gorbachev, and many were opposed to the president's dreamy ambition to rid the world of nuclear weapons. Some of them wanted no reductions at all.

Reagan himself had said in speeches earlier in his career that he held no illusions about a peaceful convergence between the American and Soviet systems, a change that would require "that we whittle the back edge of our heels round." [2] He often used this expression "round-heeled," which was a term of his generation to refer to a woman who could be put on her back easily. For Reagan at Reykjavik this meant not giving up the SDI, and not agreeing to any cuts in forces that would leave America and NATO open to Soviet aggression. The hardliners always warned that this peace offensive by Gorbachev might have been just a deception, or they feared that he would soon be replaced by hardliners who would renege on everything. Dick Cheney was one of the people who held onto this view right up until Gorbachev announced the collapse of the Soviet Union on December 25, 1991. He and George H.W. Bush never saw it coming, apparently, although it was obvious to most observers that things were unraveling quickly after the thwarted coup of August 1991. Bush seemed to believe the union would hold together, and feared the instability that would follow.

On the other hand, some of the statements on this matter by the Bush

administration come across as disingenuous. Sean Gervasi was one of the few scholars at the time compiling research and critical analysis on just how deliberately the US was trying to destabilize the USSR throughout the 1980s. The final result was precisely the goal of these efforts. In 1992, he concluded:

> The Soviet Union today, in the absence of this extraordinarily crafty, well-thought-out, extremely costly strategy deployed by the Reagan administration, would be a society struggling through great difficulties. It would still be a socialist society, at least of the kind that it was. It would be far from perfect, but it would still be there, and I think, therefore, that Western intervention made a crucial difference in this situation. [3]

In a 1991 statement that seems highly ironic now, after the US actively assisted a Ukrainian extremist overthrow the pro-Russian government of Ukraine in 2014, President Bush cautioned the republics against having high expectations of a better life as independent nations. The contrast says much about the recklessness of contemporary US adventurism:

> Freedom is not the same as independence. Americans will not support those who seek independence in order to replace a far-off tyranny with a local despotism. They will not aid those who promote a suicidal nationalism based upon ethnic hatred. [4]

During the autumn of 1991, US Senator Sam Nunn knew the end was near for the Soviet Union. He had visited Russia recently and seen the military shifting its allegiance to Yeltsin's Russia. Suddenly, no one was speaking of the Soviet Union but rather of fascinating changes taking place "in Russia." Nunn fought for $1 billion in US food and financial aid to ensure stability and a smooth transfer of control of the nuclear arsenal as the republics declared independence. [5] Even Richard Nixon wrote a memo to the president (leaked to the press) in March 1992 about the danger of losing Russia to a catastrophe that would put it beyond the reach of American influence. Instead of meaningful assistance, Russia was soon treated to a decade of economic shock therapy via the IMF and World Bank's standard austerity prescriptions, which coincided with the corrupt privatization of state property.

Reagan's evolution

Reagan began his presidency in 1981 by ending the détente process begun by President Nixon. He wanted a nuclear free world, but didn't speak much of it during these first years when he wanted to establish a position of strength from which to negotiate. He terrified the Soviet leadership by accusing them of leading an "evil empire" bent on world domination, and by drastically increasing military spending. He began a program of random and unpredictable near-incursions of Soviet air space, which made Soviet leaders and military planners jumpy and confused about American intentions. These incursions played a role in famous Korean Airlines incident in September 1983 in which a Soviet fighter jet shot down a passenger airliner that had flown off course into Soviet airspace.

Just a few weeks later, at the end of September, a false alarm indicated to a Soviet early warning center that five American nuclear missiles had been launched toward the Soviet Union. According to protocol, officer Stanislav Petrov should have reported the incident so that the Soviet leadership could decide whether to launch on warning (before confirming nuclear explosions), but he went with his feeling that it must be an error (which it was) because the detection system was new and flawed, and he knew a first strike would involve more than just five missiles.

During this tense period, Reagan's tough talk came close to making the Soviets fear that NATO's Able Archer drill of November 1983 was a little too realistic. One of the imagined scenarios for the launch of a first strike had always been that the enemy would conceal it within an apparent drill. Fearing a first strike was imminent, the Soviet side almost launched one of their own. Reagan later realized, belatedly, that he might have gone too far. Filmmaker Oliver Stone described the change in his thinking in *The Untold History of the United States*:

> Despite all his bluster, Reagan too feared the possibility of war which he associated with the biblical Armageddon. After watching the enormously popular 1983 ABC TV movie *The Day After*, Reagan wrote in his diary that it "left me very depressed." Reagan began to rethink his approach to the Soviet union. He later wrote in his memoirs: "Three years had taught me something surprising about the Russians. Many were genuinely afraid of America and Americans." Incredibly, if this diary is to be believed, it had never dawned on president Reagan that the Soviets might indeed fear a US first strike. [6]

Reagan had viewed *The Day After*, a graphic depiction of the effects of total nuclear war on Lawrence, Kanas, a month before the American public saw it. It was ironic that the terrified public was never informed at the time about how high tensions were that autumn. It was only later revealed that there had been the two close calls mentioned above. While Reagan felt depressed by *The Day After*, for others in the administration the broadcast of the film was a public relations nightmare. A line-up of conservative experts had been readied for a televised panel discussion after the showing in order to manage the public reaction. Physicist Carl Sagan was the only person called upon to represent the voices of the anti-nuclear movement. Nonetheless, the strange series of events in 1983 had changed Reagan and changed the game. He started to look for a channel of communication with the Soviet leadership, but it was hard to make progress because Soviet leaders were ill and dying in quick succession. Brezhnev, Andropov and Chernenko died between November 1982 and March 1985.

When Gorbachev rose to power in March 1985, he took the initiative to start meaningful disarmament talks, beginning with the 1985 Geneva Summit. The next year at Reykjavik, the possibility of a nuclear free world was dashed only because of disagreement over SDI, and this turned out to be the tragi-comic core of the Reykjavik narrative. In retrospect, it proved to be much ado about nothing. Soon after the summit, news of the Iran-Contra scandal broke, and Reagan was politically crippled afterwards. Support for SDI dried up in the US Congress and nothing ever came of it. Critics had always pointed out that it was a chimera. Perhaps the Soviets had been fools, too, for having been seriously afraid of it. They could have indulged the Americans in their fantasy and let America go broke trying to build it. They forgot the old saying "never interrupt an enemy when he is making a mistake."

Reagan held so fast to SDI because it would provide a simple, happy ending to his political career, which he seemed to view like a story arc in one of his Hollywood movies. He would make the world safe once and for all by giving it a system that could shoot down any nuclear missile launched by any rogue element in the peaceful world system, a little bit like the inter-planetary enforcer in *The Day the Earth Stood Still*—the 1951 science fiction film he often cited as a favorite that inspired his pursuit of world peace.

Faith in SDI required one to ignore the fact any anti-missile system could be defeated, that some missiles would always get through. Furthermore, there were other ways besides missiles to deliver nuclear weapons. Reagan promised to share the technology with the Soviet Union

and all other peace-loving allies. He insisted it was just for defense against "madmen," assuming there would be some way of knowing who was a madman in all future world conflicts. He didn't understand why anyone would oppose SDI if they were planning on getting rid of all their nuclear weapons anyway. Gorbachev thought it was preposterous to suggest that the Americans would willingly share a technology that had cost hundreds of billions of dollars to develop. He pointed out that they didn't share even basic industrial technology with the USSR. Many in the Reagan administration agreed that the idea of sharing was absurd, and they wished Reagan hadn't mentioned it during the negotiations.

The American side also refused to acknowledge the fear that they would have had if an adversary had been developing space-based defenses. Missile defense systems can be used in a "layered" attack in which the side with the missile defense system can be the aggressor, launching a first strike then hitting the enemy's retaliatory strike with the missile defense system. Reagan knew that the Soviets had this concern, but he begged Gorbachev to understand they were declaring peaceful intent, and now that they were friends, wasn't that good enough? He was asking Gorbachev to trust now but not be able to verify future American intent. For Gorbachev, it was an absurd request and he was stunned that Reagan could not understand why. In the present age, China and Russia are making the same protests to America about its ground-based missile defense systems stationed in South Korea and Romania.

On other points the Americans were equally illogical. Richard Perle, Assistant Secretary of Defense for Global Strategic Affairs, claimed that the nuclear warheads on American bombers shouldn't be counted in the negotiations because the Soviet air defenses were supposedly impenetrable. He didn't seem to see the logical implication that if this were true, this leg of the nuclear triad was unnecessary and a colossal waste of money. In May 1987, German teenager Matthias Rust landed a single-engine Cessna in Red Square, proving something about the invincibility of Soviet air defenses.

Both leaders finished the Reykjavik talks feeling betrayed and angry. Bitter words were spoken at the end and the two men walked out silently, trying to put on a brave face for the media, but to no avail. Reagan had spoken earlier of wanting to get away early so he would be home for dinner, so he drove off to the embassy without meeting the press. Gorbachev, the communist, demonstrated better Madison Avenue skills. He headed over to the building where hundreds of journalists were waiting and, during the walk, had time to master his emotions and think of a way to spin the outcome as a victory with words that were met with thunderous applause:

> In spite of all its drama, Reykjavik is not a failure—it is a breakthrough, which allowed us for the first time to look over the horizon. [7]

Challenging the Heroic Narrative

Most histories of Reykjavik and other disarmament summits glorify and accept the premises of how these events should occur, who should lead them, and who should have a say in them. Yet the United States and the Soviet Union were, after all, the perpetrators of the crime. Why should they be judge, prosecutor and enforcer, and take up the case only at their own leisure? It would be better to think of them as two criminal syndicates whose interest in peace arose only from a mutual need to cut losses in a long war of attrition. To the extent that a moral imperative is involved, the community of nations had to wait until the criminals decided to act on one.

Humanity has been slow to look at nuclear abolition this way, but the development, testing and possession of nuclear weapons needs to be seen as a crime against humanity and against the ecosystem. Great enduring harm has been done in places such as Hanford, French Polynesia, Mayak and Semipalatinsk, just to name a few examples where nuclear bomb manufacture and testing took place. This damage already inflicted is in addition to the reckless endangerment of risking the outbreak of full nuclear war.

It is difficult to imagine who would adjudicate in a legal process that indicts the nuclear powers because there would have to be a force in the world that could subordinate a nuclear power. Do they have nuclear weapons because they were powerful enough to obtain them, or are they powerful because they have nuclear weapons? Are nuclear arsenals the currency of power, a kind of reserve currency that underpins the global order? (A question that cynically raises another question: whether we should forget about going back to the gold standard and instead peg a global currency to the plutonium standard.) If it is so, how do we bring nuclear powers to justice? My romantic vision for a path to a world free of nuclear weapons is to suggest that the non-nuclear armed nations should be able to prosecute the nuclear-armed nations and force them to disarm. They are the rogue nations, the axis of evil, and those nations who don't help in bringing them to justice are abetting them. To adapt the famous Bushism, we could say, "You are either with us or you're with the nuclearists." Recapturing the spirit of Reykjavik—a time when the two superpowers at least looked over the horizon and seriously talked about total abolition—might be a way

to start, but a totally new kind of international forum has to be invented, and it should resemble a tribunal more than a summit. Or, at the very least, nuclear disarmament should be an arbitration process with a neutral third party forcing the perpetrators to undergo psychological counselling and resolve the terror they have inflicted on the world.

Few accounts of the summits discuss the way that they paved the way for the darker days that followed. The optimistic narrative is rarely critically examined. The Reagan administration staff denied that there was any plot to drive the Soviet Union into bankruptcy by outspending it on SDI and other military projects. Such a motive, along with other destabilization efforts, were well-hidden and constantly denied, but it was contradicted by the research done by Sean Gervasi, mentioned above (see note 3). The dire situation of the USSR was understood by all, no matter how much effort was put into stoking fears in the public of a mighty communist foe that was always on the verge of gaining the strategic advantage.

Since the 1970s there had been growing speculation about an imminent collapse of the Soviet system. By the mid-1970s, Americans were well aware that they were keeping the USSR fed by sending wheat to it every year, then oil prices crashed in the 1980s, further limiting the source of income that was needed to keep the economy afloat. The war in Afghanistan and the Chernobyl catastrophe had burdened the economy further and deepened public cynicism beyond repair. In *Arsenals of Folly*, Richard Rhodes describes how in 1976 one demographer predicted both the timing and the way the USSR would collapse:

> The boldest prediction of impending Soviet collapse during this period… was the work of a… French historical demographer named Emmanuel Todd… in a book entitled T*he Final Fall*, published in France in 1976… Unfortunately, almost without exception, professional Sovietologists—Richard Pipes [of the CPD] was a typical specimen—were the last to recognize the decline and fall of the political system on whose leviathan enigmas they had built their careers. The reviewers praised Todd's innovative approach, but his prediction of impending Soviet collapse was dismissed as a "penchant for dramatic prophesying"… Todd dramatically—but also accurately—prophesied on the opening page of his book, "In ten, twenty or thirty years, an astonished world will be witness to the dissolution or the collapse of this, the first of the Communist systems." …The perspicacious young Frenchman doubted that the Soviet regime would "suffer a violent upheaval." Its organization protected it from

> mass uprisings, and the West was intervening to protect it from famine. Astonishingly, he thought, "the successive or simultaneous breaking away of the [East European] satellites should soon be accepted by the Kremlin without too much fuss" … Soviet reform would have to be intelligently executed. The situation in which the USSR finds itself is so implausible and tangled that it would require perfect mastery on the part of a solidly established ruling class… Let's pray for a uniformly intelligent Politburo in the years to come." It mattered greatly whether the US government believed the Soviet Union to be an expanding or a declining power. [8]

According to Richard Rhodes, all of this was known, or should have been known, by the CIA, if the agency had not been purged of analysts who could do objective work. Many of these signals were missed because, as in the hunt for weapons of mass destruction in Iraq in 2002-2003, ideology was dictating the information that would be selected by the administration. On the other hand, it could be that the CIA and other agencies were just playing dumb while they concealed their destabilization programs. At the very least, the Americans knew that Gorbachev came to Reykjavik more anxious than they to make a deal that would cut military spending. The Americans could wait, but he couldn't. At the first Politburo meeting after the summit, Gorbachev complained that the Americans were indeed trying to bleed them dry:

> It is [the belief] that the US might exhaust us economically via an arms race, create obstacles for Gorbachev and for the entire Soviet leadership, undermine its plans for resolving economic and social problems and thereby provoke discontent. Moreover, in this way they hope to limit the possibilities for Soviet economic ties with the developing countries, to create a situation where those countries would be forced to come bowing to the United States. Finally, their mistake is in thinking that with the help of the SDI they could undermine the [strategic] parity and achieve military superiority. [9]

To some degree, these complaints must have been the necessary bluster that Gorbachev had to demonstrate before the Politburo, but it reveals a side of him that he toned down in the West, where he had become a celebrity. Gorbachev was an enigma in those days. Did the celebrity status go to his head, or was it a conscious ruse he engaged in to make perestroika succeed? Nonetheless, it was jarring for the world to hear him say he had

become "friends" with such people as Margaret Thatcher, which made him a friend of a friend of Chilean fascist dictator Augusto Pinochet. While he was cutting ties with Angola and Cuba and halting all talk of supporting socialism in the world, here in front of the Politburo he spoke about Reagan like an unreformed Marxist:

> … we had to wage a struggle in Reykjavik not only with the class enemy, but also with such a representative of our class enemy, who exhibited extreme primitivism, a caveman outlook and intellectual impotence. [10]

His mention of developing countries in the Politburo meeting is interesting because during the Reykjavik summit Reagan pushed him hard on human rights, and several concessions were made in order to make progress in disarmament talks. Unfortunately, Gorbachev was not in a position from which he could push back. Gorbachev freed the dissident scientist Andrei Sakharov under pressure from Reagan, but the American dissident Noam Chomsky (not living in a gulag but shut out of establishment media) could have supplied him with copious notes on American-sponsored atrocities in East Timor and Central America. [11] Gorbachev could not have been uninformed on these aspects of American foreign policy, but he knew but couldn't make them an issue in these negotiations. Many years later, Fidel Castro said about Gorbachev's 1989 visit to Cuba:

> I told him that the USSR had to broaden its relations with all the political forces and to that end, I advised him to hold a meeting with the revolutionary, progressive, and democratic forces, and I think he accepted my suggestion. [12]

As much as Gorbachev may have agreed with Castro, the historical record shows that the Soviet Union and Russia were never again able to support revolutionary, progressive, and democratic forces not aligned with Western interests. This is the tragedy of the end days of the Soviet Union, the corner that Gorbachev had painted himself into with the pursuit of perestroika and nuclear arms agreements with America. He would be accused of betraying the developing world. Many scholars have insisted that Gorbachev was the reckless destroyer of the Soviet socialist experiment. They argue that the economic crisis was not as dire as stated in the standard narrative, and that the union could have been held together

by a leader with a stronger grip on the second economy (the illegal black market) and separatist forces. [13] Fidel Castro perhaps made the most concise assessment of the Soviet demise when he concluded, "Socialism did not die from natural causes: it was a suicide." [14] Others, including Gorbachev in his memoirs, would blame Yeltsin and all those who hijacked perestroika, looted public assets ("grab-it-ization"), stoked false hopes in the republics of the union for a better future as independent nations, and condemned Russia in the 1990s to Western economic shock therapy.

Gorbachev could have stood up for the Third World, if he had had some leverage, but he had little, and the Americans knew it. It would have been nice if he could have reminded Reagan of his words in the "evil empire" [15] speech regarding racial equality, that what was "once a source of disunity and civil war, is now a point of pride for all Americans." Apartheid in South Africa would have ended sooner if America had stopped supporting South Africa's war against Angola. Gorbachev also never challenged the American understanding of Soviet involvement in Afghanistan. He could have done more to defend how the Soviet Union got involved there reluctantly, not for world conquest but because it feared the destabilizing effects of the Iranian revolution rippling into other Islamic regions. He could have cautioned Americans about the blowback that would come from arming the Mujahidin and Osama bin Laden.

Today, the popular narrative about the Reagan years ignores these issues. The story goes that that he ended or "won" the Cold War, while the brutal crimes of the regimes supported by America in the 1980s are stories told in the margins. In the report about the Reykjavik Summit issued by Hoover Press in 2007, Reagan's Secretary of State, George Shultz, the editor, put on the cover the line "a key lesson learned at Reykjavik: the importance of negotiating with enemies." [16] Shultz is one of the heroes of the arms reduction success story. He wasn't one of the extremists in the CPD, and he managed to deflect the influence of those who wanted to sabotage any deal on strategic arms reductions. He formed a personal bond with Gorbachev and his counterpart, Soviet foreign minister Eduard Shevardnadze. However, the heroic narrative omits that he adamantly refused to negotiate with Daniel Ortega's government in Nicaragua, and he supported violent overthrow of it, calling it "a cancer, right here on our land mass." [17] He supported all of the foreign policy that sought to suppress the developing world's independence and control of its own resources. The line on the book cover should really be this: the importance of negotiating with enemies, if they have the power to annihilate you.

This comparison of the two facets of Shultz's achievements points to

the fact that there is a certain amount of reputation polishing among the elder statesmen who focus on their achievements in nuclear disarmament, which is uncontroversially seen by almost everyone as a good thing. On the other hand, they don't talk so loud and don't seem so proud of their war crimes in Central America. There are no books written in retirement about that, no nostalgic visits with Gorbachev to talk about what was done there. Let us never say that nuclear arsenals are useless because one of their unacknowledged functions is that they provide great leverage and distraction in negotiations with adversaries, and they create the need to always prioritize discussions about their elimination. As a bonus, when reductions are achieved, they polish the image of those who sign the deals. Lesser priorities such as the right to self-determination and control of national resources can be endlessly ignored while serious men talk the talk of dealing with "the existential threat" but do not walk the walk of actually eliminating it.

This is now

As Russians now assess the world events that have occurred since 1986, they have taken a lesson from Gorbachev's experience in negotiating with enemies from a position of weakness. Since the early 1990s, Gorbachev has denounced the new world order led by a single superpower, the betrayal of the promise not to expand NATO eastward, and the quick resort to military force as a solution to all global disputes. Vladimir Putin, as well as many Russian citizens, have perhaps come around to agreeing with Ronald Reagan's words in the "Evil Empire" speech of 1983: "Simple-minded appeasement or wishful thinking about our adversaries is folly… they sometimes speak in soothing tones of brotherhood and peace" but "the only morality they recognize is that which will further their cause… morality is entirely subordinate to the interests… and everything is moral that is necessary for the annihilation of…" resistance to the American Empire. Reagan was speaking of his fear of Marxist world revolution, but now his words can be turned back on him, to a nation that, after 2001 especially, reverted to an extreme emphasis on supremacy rather than on common security.

As we look backward over the horizon to the Reykjavik Summit, there is a dismal reckoning to be made of the opportunities lost. In the early 21st century, the US went back to where it was in the early 1980s, reviving missile defense and continuing with standard nuclear doctrine, then it made things even worse by creating a bilateral relationship in which a US-Russia

summit on disarmament would now be unimaginable.

There are fewer nuclear weapons in the world, but that hardly matters when there are still enough to cause a nuclear holocaust. Perhaps the reductions were done just to reduce costs and eliminate some of the redundancy. Far back in 1983, during the panel discussion after *The Day After*, US General Brent Scowcroft stressed the importance of having an arsenal that far exceeded what any other country could produce. Otherwise there would be more "instability" as other countries got the idea that they could catch up to the superpowers. [18] Thus in 2016 there have been no significant reductions in twenty years and the US and Russia still have 93% of all the nuclear weapons in the world. None of the other nuclear-armed nations has shown interest in disarmament, and it is a dead issue as long as the United States works to antagonize Russia, remains silent about Israel's nuclear arsenal, and wages an illegal war in Syria, demanding absurdly that the government of Syria stop attempting to gain control over its sovereign territory.

When President Bush II took America out of the ABM Treaty, then sped up development of missile defense and reverted to the pursuit of nuclear supremacy, American policy makers were embarking on the same erroneous ways that had been so painfully unlearned by the 1980s. They were once again making the philosopher's category mistake of assuming that nuclear explosives, with the resultant missile defense counter-measures, are military weapons. The problem posed by nuclear weapons requires a political solution. Richard Rhodes finishes his book with a paragraph that sums up the fundamental problem:

> The discovery of how to release nuclear energy… revealed that there was no limit to the amount of energy that might be packaged into small, portable, and relatively inexpensive weapons; that there could be no defense against such weapons, each of which could destroy a city; that therefore a policy of common security in the sort run and program of abolition in the long run would be necessary to accommodate the new reality and avoid disaster. Recoiling from such urgencies, which would require negotiation, compromise, and a measure of humility, we chose instead to distend ourselves into the largest scorpion in the bottle. Obstinately misreading the failure of our authoritarian counterpart on the other side of the world, to our shame and misfortune, we continue to claim an old and derelict sovereignty that the weapons themselves deny. [19]

For a conclusion, I finish with a recent quote by Russian Deputy Foreign Minister Sergey Ryabkov. The points of contention he lists make for a grim reiteration of everything that was at issue in Reykjavik thirty years ago, and it is a sad contrast with the *WorldNews* summary above that described how in Reykjavik Reagan and Gorbachev managed "to look beyond past hostilities and forge a new and lasting relationship":

> Without finding a solution to the missile defense problem, without preventing a new arms race in space and making the nuclear test ban a universal treaty, without settling the issues connected with the lack of balance in conventional weapons, the nuclear talks with the United States are impossible. They know about it. It has been publicly announced before. NATO members continue to build up their anti-missile potential in Europe as part of their so-called phased adaptive approach. We have repeatedly expressed our concern over the placing of strategic infrastructure in the direct vicinity of our borders as this affects our interests in the security sphere. Moscow will keep a close watch at the situation and will not cease its efforts to explain the inevitable and undesirable consequences of the American project's realization. [20]

Notes

[1] "Reykjavik Summit," *World News Network*, September 7, 2011, https://wn.com/reykjavik_summit.

[2] Governors' conference in 1963, "Are Liberals Really Liberal?" In Richard Rhodes, *Arsenals of Folly*, 260-262.

[3] Sean Gervasi, "How the U.S. Caused the Breakup of the Soviet Union," *Global Research*, November 24, 2017, https://www.globalresearch.ca/video-how-the-u-s-caused-the-breakup-of-the-soviet-union/5619579. This article is a transcript of a lecture given in January 1992.

[4] Richard Rhodes, *The Twilight of the Bombs: Recent Challenges, New Dangers, and the Prospect of a World without Nuclear Weapons* (New York: Alfred A. Knopf, 2010), 106-107.

[5] Richard Rhodes, Ibid, 99.

[6] Oliver Stone (Director), Peter Kuznick (Writer), *The Untold History of the United States*, Part 8, DVD, Warner Home Video, 00:36:35~.

[7] Mikhail Gorbachev, *Memoirs* (London: Doubleday, 1995), 419.

[8] Richard Rhodes, *Arsenals of Folly: The Making of the Nuclear Arms Race* (New York: Vintage, 2007), 140-141. Much of the information in this essay was found in this book, especially chapter 13 (pages 236-270) on the Reykjavik Summit. Rather than fill the essay with excessive endnotes, I make just this general reference. Unless otherwise stated, all interpretations and opinions are my own.

[9] USSR CC CPSU Politburo session on results of the Reykjavik Summit, 14 October 1986, *The Reykjavik File* (Document 21), National Security Archive, http://nsarchive.gwu.edu/NSAEBB/NSAEBB203/Document21.pdf.

[10] USSR CC CPSU Politburo… Ibid.

[11] Noam Chomsky, "The Contra War in Nicaragua," Libcom.org, September 8, 2006, https://libcom.org/history/1970-1987-the-contra-war-in-nicaragua. Originally published in *What Uncle Sam Really Wants*, Odonian Press, 1992.

[12] Francesco Merlo, "Fidel Castro on Socialism, Economy, Clinton," *Latin American Network Information Center*, translation of the original article in Italian published in *Milan Corriere Della Sera* December 5, 1992, http://www1.lanic.utexas.edu/project/castro/db/1992/19921205–1.html.

[13] Roger Keeran and Thomas Kenny, *Socialism Betrayed: Behind the Collapse of the Soviet Union* (Bloomington, Indiana: iUniverse, 2010).

[14] Euvkeny Novikov and Patrick Bascio, *Gorbachev and the Collapse of the Soviet Communist Party* (New York: Peter Lang, 1994).

[15] Ronald Reagan "Evil Empire Speech," *Voices of Democracy*, March 8, 1983, http://voicesofdemocracy.umd.edu/reagan–evil–empire–speech–text/.

[16] Sidney D. Drell, George P. Shultz, Editors, *Implications of the Reykjavik Summit on Its Twentieth Anniversary: Conference Report* (Hoover Press, 2007).

[17] David K. Shipler, "Shultz Assails Nicaragua in Asking Aid for Rebels," *New York Times*, February 28, 1986, http://www.nytimes.com/1986/02/28/world/shultz-assails-

nicaragua-in-asking-aid-for-rebels.html.
[18] *The Day After Discussion Panel*, ABC News, November 18, 1983, https://nf2045.blogspot.jp/2016/08/lessons–from–day–after–for–new–cold.html .
[19] Richard Rhodes, *Arsenals of Folly: The Making of the Nuclear Arms Race* (New York: Vintage, 2007), 308-309.
[20] "Global missile defense main obstacle to nuclear talks with US—Russian diplomat," *Russia Today*, September 22, 2016, https://www.rt.com/politics/360266–missile–defense–key–to–nuclear/.

32. On the “Uselessness” of Nuclear Weapons

One common view in nuclear disarmament studies is that nuclear weapons are useless because they can never be used. Colin Powell is one of many voices for disarmament who have expressed this view that they have no purpose because no one dare use them. [1] In this view, the policy of mutual assured destruction is merely an absurd trap from which the superpowers must extricate themselves. But if this were all there was to it, we would have to ask why they continue to exist. Nuclear weapons are a colossal expenditure of national wealth, lives and the natural environment, so it would be better to look for rational rather than irrational reasons for their continual existence. We have to ask what makes them so worthwhile to the nations that sacrificed so much to get them and now cling to them so stubbornly. If they really did have no advantages, surely we would have eliminated them by now. Perhaps the conventional wisdom is missing something.

In the 1991 documentary film, *The Truth of Christmas Island*, a high ranking officer in Britain’s nuclear program described the thinking that was behind the decision to test hydrogen bombs in the Pacific in the late 1950s:

> The government had made a decision many years before in its secret committee that Britain had to be a nuclear power or otherwise we were right out of world politics. That was not to be tolerated for a moment. And then suddenly it was realized that an international ban on testing... was about to come into force in perhaps a year’s time and we would be left outside, so Britain would immediately become a second rate power. In no way were we ready to do a test in a year’s time. [2]
> -Air Vice-Marshall Richard Oulton, Task Force Commander 1955-57

Similar comments can be found elsewhere in the historical records of other nuclear powers. Possession of nuclear weapons brings much more than just symbolic status. French leaders have also spoken frequently of the

glory of having *la force de la frappe* (the power to strike). Elsewhere, when asked to make a commitment to never strike first, nuclear powers prefer to remain coy because ambiguity is key. As the old hair dye television commercial used to say, "Keep them guessing." The value of the weapons would be diminished if a state were to announce to potential adversaries that they wouldn't be used in certain situations. After spending so much national treasure and destroying lives and the natural environment just to make the bombs, states have no intention of lowering their strategic value. Besides, even if a state promised to never launch a first strike, the promise would be very easy to break. The world that followed would be too shattered to hold a war crimes tribunal.

In truth, planners envision many disastrous scenarios in which a first strike might be the only way to preserve national sovereignty. Tactical (battlefield) nuclear weapons, for example, are meant to be used at the discretion of field commanders in some instances, as is the case in Pakistan presently. [3]

A nation might be depleted of all means of defense, near defeat, facing imminent ruin and occupation. It might be under threat of an ambiguously worded threat of "mass destruction" which does not necessarily imply a nuclear strike. When backed into such a corner, what government would refrain from using, or threatening to use, every weapon at its disposal? The ability to threaten is useful in itself, but a nation can't threaten to use a weapon if it doesn't possess it or if it has promised to not use it in certain circumstance—unless of course it breaks the promise, which could be done quite easily. The term "non-explosive use of nuclear weapons" has been coined to refer to all the ways nations use nuclear weapons while they remain ostensibly unused.

The French have been very talkative on this point whenever they discuss their country's possession of *la frappe*. When President Hollande was asked in February 2016, during a state visit to French Polynesia, whether the state should apologize to the victims of the fallout and admit that nuclear testing was a mistake, he balked as if the question were absurd, and bluntly said, no, that's how we got *la frappe, la dissuasion*. [4] In French politics, it is beyond the pale to question the value of this achievement. They thank the French veterans and Polynesians for their sacrifice, made with uninformed consent, and have recognized that there were "effects," but that is as far as it goes.

Two quotations by recent French presidents make it clear that deterrence does not mean only deterring an opponent from a nuclear first strike:

> On the topic, President Sarkozy said: My first duty as head of state and of the military is to assure that in all circumstances France, its territory, its people, and its republican institutions, are secure. And in all circumstances, our national independence and our autonomy of decision-making must be preserved. Nuclear deterrence is the ultimate guarantee of this. Taking measure of this reality is the heavy responsibility of every president of the republic. (March 21, 2008) [5]

President Chirac declared:

> It is the responsibility of the head of state to appreciate always the extent of our vital interests. The uncertainty of this limit is consubstantial with the doctrine of deterrence… It is up to the president of the republic to appreciate the profound potential consequences of an aggression, a menace or an unacceptable blackmail threatening our interests. This analysis could, in an applicable case, lead to an understanding that a threat to our vital interests exists. (January 19, 2006) [6]

North Korea has also stated a similar stance on the use of its nuclear weapons. *Reuters* and *Russia Today* translated and interpreted Kim Jong-un's statement incorrectly as saying "the North will adhere to the principles of nuclear non-proliferation and would never attack first." Further down in the report the policy was clarified as something a little different: "As a responsible nuclear weapons state, our Republic will not use a nuclear weapon unless its sovereignty is encroached upon by any aggressive hostile forces with nukes." [7] In other words, their policy retains the same ambiguity as that of other nuclear powers. The phrase "aggressive hostile forces with nukes" might refer to a hostile force in possession of nukes or to a hostile force that has initiated a nuclear attack. Perhaps the ambiguity arose in the translation, but the statement suggests that they will not necessarily wait to be struck by a nuclear bomb before launching their own. They will use a nuclear weapon when their "sovereignty is encroached upon." The difference is crucial. Being the victim of a first nuclear strike would be a fact, an event which no one could dispute, but having "sovereignty encroached upon by forces equipped with nuclear weapons" would be a subjective feeling and matter of interpretation. The nuclear powers all retain the right to make this judgment for themselves and strike pre-emptively. When the promise of no first use is discussed, it can

best be understood as a desirable preference, but the nuclear powers never make an unambiguous commitment to it.

In August 2016, US President Obama floated the idea of committing to "no first use," but he received little support within his own administration and from allies that are protected by the American nuclear umbrella. President Bush's 2002 Nuclear Posture Review stated three scenarios in which the US would respond with a first nuclear strike: when attacked by weapons of mass destruction of any type, to penetrate hardened underground targets that couldn't be destroyed by conventional weapons, and in the event of "surprising military developments." [8] It is plausible that all nations in possession of nuclear weapons have similar policies, whether they are explicitly stated or not. Half the motivation for wanting the weapons in the first place is to be able to wield these threats.

In *Empire and Nuclear Weapons*, an article written in 2007 about his new book, Joseph Gerson described how American officials have defined nuclear deterrence in a similarly broad fashion over the years. His description of the five established uses of nuclear weapons is paraphrased below:

1. Battlefield use, with the term "battlefield" meant to include the civilian populations of Hiroshima and Nagasaki. The long-held consensus among scholars has been that these first atomic bombings were not necessary to end the war against Japan, and that they were designed to serve a second function of the U.S. nuclear arsenal…

2. Dictate the parameters of the global (dis)order by implicitly terrorizing U.S. enemies and allies.

3. Threaten opponents with first strike nuclear attacks in order to terrorize them into negotiating on terms acceptable to the United States or... to ensure that desperate governments do not defend themselves with chemical or biological weapons. Once the Soviet Union joined the nuclear club, the U.S. arsenal began to play a fourth role...

4. Complement U.S. conventional forces, to make them, in the words of former Secretary of Defense Harold Brown, "meaningful instruments of military and political power." Implicit and explicit U.S. nuclear threats were repeatedly used to intimidate those

who might consider intervening militarily to assist those we are determined to attack.

5. Deterrence, which is popularly understood to mean preventing a surprise first strike nuclear attack against the United States by guaranteeing "mutual assured destruction" (MAD). Pentagon leaders have testified that this understanding of deterrence has never been U.S. policy. In contrast, they have defined deterrence as including function number 2 above, as preventing other nations from taking "courses of action" that are inimical to U.S. interests. This could include decisions related to allocation of scarce resources like oil and water, defending access to markets, or preventing non-nuclear attacks against U.S. allies and clients. [9]

Gerson points out that these five functions did not necessarily always succeed because history provides many examples of nations and revolutionary movements that called the bluff. To cite a few examples, China was "lost" to communism in the late 1940s, the North Vietnamese held out until the Americans left in 1975, and Cuba, the USSR and Angola resisted American power in Southern Africa for a quarter century. Yet in other cases, listed in Gerson's article, nuclear threats were implicit or explicit in America's actions on the world stage, and they advanced the political agenda. The full spectrum of American military power, ultimately backed up by nuclear weapons, succeeded in imposing the American military, economic and political order. The usefulness of nuclear weapons is implicit and clearly understood by all nations that possess them, and, of course, by those that don't.

Unfortunately, much of the Western discourse on nuclear disarmament has lost sight of these reasons that the most powerful nations have for refusing to give up their arsenals. Long ago in 1986, Joseph Gerson wrote, "Few disarmament and arms-control activists or leaders have understood the relationship between the nuclear arms race and the global ambitions of the U.S. Similarly, efforts to halt and restrain U.S. intervention in the third world have too often proceeded in ignorance of the nuclear ramifications of 'conventional' conflicts in Asia, the Middle East, Latin America, or Africa." [10]

This misunderstanding seems just as prevalent today. Many activists think the reason might be bureaucratic inertia, entrenched financial interests of those who make and work with the bombs, or it might be that states are just trapped in an absurd game in which making a first strike

is unthinkable but deterring one is essential. Many of the people who write about disarmament know everything about nuclear arsenals and disarmament agreements, but they are often somewhat oblivious to the wider context of international relations or uncritical of the way global power has been exercised over the last seventy years.

The Nuclear Security Summit hosted by US President Obama (April 2016) illustrated how the disarmament movement itself has been colonized by the Western consensus and the tropes of mainstream media punditry. Russia chose not to participate, and Western commentators unanimously chastised Russia for this absence and its recent "aggressive" behavior in Syria, Crimea and Ukraine. No effort was made to reflect more deeply on why Russia saw nothing to gain from participating. Despite America's long and well-documented record of flouting international law in numerous CIA-managed coups and regime change operations, people who are apparently deeply committed to disarmament can now focus only on Russian aggression. Is this willful neglect or ignorance? If it is the latter, it requires considerable effort to maintain.

Russia's actions in Ukraine and Crimea are ambiguous cases under international law, but the outrage over these actions seems to stem from the fact that this time a large power other than the United States, France, Israel or the UK decided it had vital interests to protect. Russia defended its actions in Crimea and Eastern Ukraine by pointing to the American meddling in the internal affairs Ukraine to overthrow an elected head of a sovereign nation. The 2014 revolution in Ukraine involved nationalist and fascist elements, and it drove the country into economic chaos, worsening corruption and ethnic divisions. Russia had genuine concerns about stopping the spread of the chaos toward Russian minorities in Ukraine, and preventing a flow of refugees into Russia, so though their actions were legally dubious, their hand was forced, probably intentionally, by America's illegal meddling in the Maidan revolt and overthrow of the head of state without a constitutionally required impeachment. Thus, if one is going to invoke international law when pointing to Russia's reaction, one must note that the Ukrainian government is illegitimate and there was illegal interference by a foreign power in the Maidan revolt. As NATO did in Kosovo in 1999, Russia invoked the "right to protect" and it must be noted that in the end Russia's actions brought stability. In contrast to the consequences of the American attempt to overthrow the government of Syria, there hasn't been a flow of refugees from Crimea making dangerous sea journeys across the Black Sea in the hope of getting to Turkey, Bulgaria or Romania then onward to Western Europe. Nonetheless, the vilification of

Russia in Western media has been out of all proportion. If we really wanted to know where the present state of international lawlessness came from, there are other places besides Russia we could look for ultimate causes.

The downside for Russia in its reaction to the Ukraine crisis was that it suffered illegally imposed economic sanctions, expulsion from the G8, and branding as a global pariah. There is also speculation that the decline in world oil prices was a deliberate manipulation to inflict economic pain on Russia. [11] The timing of the drop was certainly curious. Western and Saudi oil interests suffered for this as well, but it seems like there may have been a choice made to pay a sacrifice in order to inflict more pain on a rival. The Ukraine problem was preceded by the great game being played for Syria and pipelines through the region, but I'll leave that topic aside. [12] These points are made here just to illustrate how absurd it would be to ignore this intense superpower conflict in discussions of nuclear disarmament.

The disarmament movement in the West, however, is showing signs that it is oblivious to international affairs. It has developed a Western bias in which it has begun to disregard the views of other nuclear powers, which means, ironically, that it has lost its impartiality and begun to work against its own stated purposes. In this isolated bubble of opinion, little consideration is given to the way nuclear weapons are folded within the deployment of conventional military and economic power.

Apparently, we should expect Russia and China to participate in disarmament talks without addressing their concerns about how their counterpart outspends all other nations on military, maintains a global empire of military bases, and arbitrarily imposes economic sanctions on other nations as if it were a law unto itself. The Americans are disingenuously stumped as to what could possibly be stopping Russia from coming to the table to discuss arms reductions. A recent editorial by the editor of *The Bulletin of Atomic Scientists* had some blistering critiques of the American plan to spend $1 trillion on nuclear arsenal upgrades that will upset the balance of power between the US and other nations, but the author couldn't help casting blame on Russia for its absence from the Nuclear Security Summit and recent "bad behavior":

> Deteriorated relations between the United States and Russia make for a terribly risky world security situation. As badly as the Russians are behaving in Ukraine and Syria, Washington simply must continue to reach out. [13]

Yes, it would be such a grand, magnanimous gesture for innocent and

benevolent Washington to turn the other cheek and "reach out." The same theme reappeared in another article in *The Bulletin of Atomic Scientists* later in the same month. In this one, the author, Fiona Hill, from the American think tank The Brookings Institution wrote:

> Russia has assets it can use, but its… modernization is still underway. So, in an "asymmetric" struggle with the United States, Putin and Russia have to be innovative, catch the West off guard, and fight dirty... Putin makes it clear that Russia will act on multiple fronts at the same time and do things that Western leaders would not contemplate—including the threat of crossing the nuclear threshold and breaking the post-World War II taboo against using a battlefield nuclear weapon... Putin wants to intimidate Western leaders and their publics, but his big mission is to get Russia a seat at the table with the West, on Russia's terms, which he declares is on "equal" terms with the United States… The ultimate problem for the United States and the West is how to handle these demands, at a juncture when Putin has seemed set on bombing his way to that table, with interventions in Ukraine and Syria, and negotiating terms at gunpoint. Putin's behavior is completely unacceptable to Western leaders. But they cannot simply reject the idea of dealing with Russia in international affairs. There are common crises that the West and Russia need to solve together, like planning the future of the Middle East beyond Syria, stopping the proliferation of nuclear weapons, countering transnational terrorism, adapting to climate change, and responding to pandemic disease. The best way to ensure that Putin will act as a spoiler on these and other issues is to try to isolate Russia. [14]

Fiona Hill seems to be unfamiliar with the history described above in *Empire and Nuclear Weapons*. All states that possess nuclear weapons have used them to implicitly or explicitly threaten to break taboos. Putin is not the first to cross this line. To possess nuclear weapons is to threaten to use them, and opponents have no way to know for sure if any taboos or thresholds exist. Fiona Hill seems to possess a crystal ball that sees into Putin's mind, which allows her know with certainty that Russia "will do things that Western leaders would not contemplate." She doesn't say *might or may or could*. She knows somehow. Unlike the supposedly benevolent governments of other nations, Russia is described as "fighting dirty," "intimidating," and "threatening to cross the nuclear threshold," as if these actions are not standard strategy for all nuclear

powers. Furthermore, she states, with utmost obliviousness to the hypocrisy of the accusation coming from an American, that Russia has been "bombing their way to the table" and "negotiating terms at gunpoint." She also seems to scoff at the idea that Russia or any other nation should expect to be treated on equal terms because it is just assumed that the global order has a hierarchy in which America is supreme.

This sort of commentary is standard and unsurprising in sources such as the Brookings Institution, but it is appalling to see it in a journal dedicated to international dialog and the goal of eliminating nuclear weapons. Has *The Bulletin* become just another Washington think tank and mouthpiece for the State Department? If the discourse of the disarmament movement is to be based on willful ignorance of history and international relations, we are entering a period when there will be multiple nation-based disarmament movements functioning as national echo chamber propaganda tools that cancel each other out in their pursuit of global dialog and cooperation. Disarmament activists have to start asking questions about the sources of funding and support that have gained influence over groups that were once believed to be neutral and above national biases.

Another flaw in the disarmament discourse is that there is a false understanding that nuclear deterrence is just an infrastructure, a financial interest, or a bureaucratic remnant of a bygone era, no longer relevant to the present era. On the contrary, nuclear deterrence needs to be understood for what it really is. Nuclear weapons are not useless. They are still the ultimate tool, among many, for influencing the behavior of adversaries and allies. They still confer the status of major power. The word *deterrence* actually conceals what is really going on: *dissuasion, persuasion, environmental contamination, nuclear energy proliferation, private profit, threats, intimidation and terror*, but if these wider meanings are not addressed, nothing will be done to *deter* or *dissuade* nuclear powers from wanting to retain their status as "first rate" powers in world politics. The allure of possessing *la frappe* has remained unchanged since those words spoken by the British task force commander in 1957. The prospect of being "right out of world politics" is not to be tolerated for a moment.

A Partial List of Nuclear Blackmail, from:
Joseph Gerson, "Empire and Nuclear Weapons," Commondreams, December 5, 2007.

1946	Truman threatens Soviets regarding Northern Iran.
1946	Truman sends SAC bombers to intimidate Yugoslavia following the downing of U.S. aircraft over Yugoslavia.
1948	Truman threatens Soviets in response to Berlin blockade.
1950	Truman threatens Chinese when U.S. Marines were surrounded at Chosin Reservoir in Korea.
1951	Truman approves military request to attack Manchuria with nuclear weapons if significant numbers of new Chinese forces join the war.
1953	Eisenhower threatens China to force an end to Korean War on terms acceptable to the United States.
1954	Eisenhower's Secretary of State Dulles offers French three tactical nuclear weapons to break the siege at Dienbienphu, Vietnam. Supported by Nixon's public trial balloons.
1954	Eisenhower used nuclear armed SAC bombers to reinforce CIA-backed coup in Guatemala.
1956	Bulganin threatens London and Paris with nuclear attacks, demanding withdrawal following their invasion of Egypt.
1956	Eisenhower counters by threatening the U.S.S.R. while also demanding British and French retreat from Egypt.
1958	Eisenhower orders Joint Chiefs of Staff to prepare to use nuclear weapons against Iraq, if necessary to prevent extension of revolution into Kuwait.
1958	Eisenhower orders Joint Chiefs of Staff to prepare to use nuclear weapons against China if they invade the island of Quemoy.
1961	Kennedy threatens Soviets during Berlin Crisis.
1962	Cuban Missile Crisis.
1967	Johnson threatens Soviets during Middle East War.
1967	Johnson's public threats against Vietnam are linked to possible use of nuclear weapons to break siege at Khe Shan.
1969	Brezhnev threatens China during border war.
1969	Nixon's "November Ultimatum" against Vietnam.
1970	Nixon signals U.S. preparations to fight nuclear war during Black September War in Jordan.

1973	Israeli Government threatens use of nuclear weapons during the "October War."
1973	Kissinger threatens Soviet Union during the last hours of the "October War" in the Middle East.
1973	Nixon pledges to South Vietnamese President Thieu that he will respond with nuclear attacks or the bombing of North Vietnam's dikes if it violated the provisions of the Paris Peace Accords.
1975	Sec. of Defense Schlesinger threatens North Korea with nuclear retaliation should it attack South Korea in the wake of the U.S. defeat in Vietnam.
1980	Carter Doctrine announced.
1981	Reagan reaffirms the Carter Doctrine.
1982	British Prime Minister Margaret Thatcher threatens to eliminate Buenos Aires during the Falklands War.
1990	Pakistan threatens India during confrontation over Kashmir.
1990-91	Bush threatens Iraq during the "Gulf War."
1993	Clinton threatens North Korea.
1994	Clinton's confrontation with North Korea.
1996	China threatens "Los Angeles" during confrontation over Taiwan. Clinton responds by sending two nuclear-capable aircraft carrier fleets through the Taiwan Strait.
1996	Clinton threatens Libya with nuclear attack to prevent completion of underground chemical weapons production complex.
1998	Clinton threatens Iraq with nuclear attack.
1999	India and Pakistan threaten and prepare nuclear threats during the Kargil War.
2001	U.S. forces placed on a DEFCON alert in the immediate aftermath of the September 11 terrorist attacks.
2001	Secretary of Defense Rumsfeld refuses to rule out using tactical nuclear weapons against Afghan caves possibly sheltering Osama Bin Laden.
2002	Bush communicates an implied threat to counter any Iraqi use of chemical weapons to defend Iraqi troops with chemical or biological weapons with a U.S. nuclear attack.
2006	French Prime Minister Chirac threatens first strike nuclear attacks against nations that practice terrorism against France.
2006 & 2007	"All options are on the table": U.S. threats to destroy Iran's nuclear infrastructure made by President Bush and presidential candidate Senator Hillary Clinton.

Notes

[1] Max Bergmann, "Colin Powell: 'Nuclear Weapons Are Useless,'" *ThinkProgress*, January 27, 2010, http://thinkprogress.org/security/2010/01/27/175869/colin-powell-nuclear-weapons-are-useless/.

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[6] *Initiatives pour le Désarmement Nucléaire*.

[7] "North Korea to 'normalize relations with hostile states,' won't launch nuke strike first—Kim," *Russia Today*, May 6, 2016, https://www.rt.com/news/342236-north-korea-normalize-relations-nukes/.

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[9] Joseph Gerson, "Empire and Nuclear Weapons," *Commondreams*, December 5, 2007, http://www.commondreams.org/views/2007/12/05/empire-and-nuclear-weapons.

[10] Joseph Gerson, *"What is a Deadly Connection?" The Deadly Connection: Nuclear War and U.S. Intervention*, ed. Joseph Gerson, (Philadelphia, New Society Publishers, 1986) p.9. Cited in John Steinbach, "The Bush Administration, U.S. Nuclear War-Fighting Policy & the War On Iraq," *Counterpunch*, May 13, 2016, http://www.counterpunch.org/2016/05/13/the-bush-administration-u-s-nuclear-war-fighting-policy-the-war-on-iraq/. (Although the article was published in May 2016, it does not refer to any events since the first term of G.W. Bush. It is an updated version of a talk given by John Steinbach at the Berkeley Unitarian Fellowship in 2003, published here: https://www.globalresearch.ca/articles/STE206B.html.)

[11] Eric Draister, "BRICS Under Attack: Western Banks, Governments Launch Full-Spectrum Assault On Russia (Part I)," *Mint Press News*, April 20, 2016, http://www.mintpressnews.com/brics-attack-western-banks-governments-launch-full-spectrum-assault-russia-part/215761/.

[12] Robert F. Kennedy Jr., "Why the Arabs don't want us in Syria," *Politico*, February 23, 2016, http://www.politico.eu/article/why-the-arabs-dont-want-us-in-syria-mideast-conflict-oil-intervention/. This article contains an in-depth discussion of the theory that pipelines and gas markets are the root causes of the Syria conflict and the renewed Cold War.

[13] Rachel Bronson, "'Command and Control,' terrifying soon at a theater near you," *The*

Bulletin of Atomic Scientists, April 3, 2016, http://thebulletin.org/command-and-control-terrifying-soon-theater-near-you9302.

[14] Fiona Hill, "Putin: The one-man show the West doesn't understand," *The Bulletin of Atomic Scientists*, April 13, 2016. http://tandfonline.com/doi/full/10.1080/00963402.2016.1170361?platform=hootsuite&.

33. Where is Japan's Missing Plutonium?

Twenty-four years ago, in 1988, I was living in Japan for the first time and starting to learn a little about the frightening aspects of Japan's nuclearization. Back then, a small booklet sarcastically entitled *Genpatsu Arigato*! (*Thanks for the Nukes*) [1] appeared, written by Yoshiko Obara, who was often described as having been "just a housewife" before she took up her cause. This book quickly became a powerful catalyst of the post-Chernobyl anti-nuclear movement in Japan. At that time, I read an English translation of it and shared it with some friends. It was horrifying enough to become one of my reasons to go back to Canada, but when years passed without a disaster happening, my good sense subsided and I returned to Japan in 1994.

Back in 1988, I remember talking about the book with friends, and one big question we had was why Japan had no declared nuclear weapons but was also unopposed by the global community in its desire to possess huge stocks of plutonium. Everyone knows the familiar lines that Japan is the only country to have experienced an attack with atomic weapons. It has a peace constitution, and it would never allow nuclear weapons on its territory, and so on. But still, why the plutonium? We were cynical to enough to suggest that Japan might really have a secret nuclear weapons program, or had a program which would allow for the rapid development of nuclear weapons. Nonetheless, it was difficult to get anyone to take such a suggestion seriously. Japan had done an excellent job of establishing its image as a peaceful country dedicated to the elimination of nuclear weapons. This is certainly true of a large sector of Japanese society, but government policy and action have never reflected this goal.

It turns out our suspicions were not in the realm of deluded conspiracy theory. A recent study entitled *United States Circumvented Laws To Help Japan Accumulate Tons of Plutonium* was published in April 2012 by the

National Security News Service. [2] It describes how Japan's allies and the IAEA have had little to say about the fact "that Japan has lost track of more than 70 kilograms of weapons-grade plutonium at its accident plagued Tokai reprocessing plant–enough to make more than 20 nuclear weapons." When un-favored nations handle enriched uranium or plutonium, they are called to account on every gram of it, and the media reports on transgressions relentlessly, but Japan just seems to have "misplaced" 70 kilograms and been allowed to accumulate a large stockpile.

The same dual standard goes for missile programs. The article describes how Japan was developing its nuclear industry and simultaneously investing heavily in rocket technology and satellite programs, and all rockets are dual use technology. This article by the PEC serves as a reminder that regardless of what we think are the faults of particular governments, all nations, including North Korea, have the right to develop defensive weapons and launch rockets into space.

An editorial of *The Mainichi* newspaper from June 23, 2012 (no longer online) reported that the Japanese Diet passed an important amendment to laws related to national security and nuclear policy, with little public awareness or controversy. The changes to the Atomic Energy Basic Law require that Japan's nuclear energy "should contribute to national security." According to the Mainichi editorial, "The Diet spent only four days deliberating the bill after it was submitted, and failed to thoroughly discuss whether Japan's atomic energy policy should contribute to the country's national security."

The phrase "contribute to Japan's national security" was also added to the Aerospace Basic Act of 2008. The use of this ambiguous phrase in the context of nuclear policy and missile and rocket technology is implicitly understood as a reference to maintaining nuclear weapons capability. These changes to existing laws conform with a policy of not necessarily possessing nuclear weapons, but they also enable a policy of maintaining the ability to construct and deploy a nuclear weapon on short notice, if doing so were deemed necessary to "contribute to the country's national security."

The Associated Press still has an article online that discusses the 2012 amendment. The writer, Yuriko Kageyama, noted in the conclusion:

> Backers of the amendment say it refers to protecting nuclear plants from terrorists. Opponents ask why the words aren't then "nuclear security," instead of "national security."

> Japan has 45 tons of separated plutonium, enough for several Nagasaki-type bombs. Its overall plutonium stockpile of more than 150 tons is one of the world's largest, although much smaller than those of the U.S., Russia or Great Britain.
>
> Tokyo Gov. Shintaro Ishihara, an outspoken conservative, has repeatedly said Japan should flaunt the bomb option to gain diplomatic clout. Former Prime Minister Shinzo Abe has expressed similar sentiments, although in more subdued terms.
>
> The Yomiuri, the nation's largest newspaper, made a rare mention of the link between nuclear energy and the bomb in an editorial defending nuclear power last year, saying that Japan's plutonium stockpile "works diplomatically as a nuclear deterrent."
>
> That kind of talk worries Tatsujiro Suzuki, vice chairman at the Japan Atomic Energy Commission, a government panel that shapes nuclear policy. Himself an opponent of proliferation, he said that having the bomb is a decades-old ambition for some politicians and bureaucrats.
>
> "If people keep saying (nuclear energy) is for having nuclear weapons capability, that is not good," Suzuki said. "It's not wise. Technically it may be true, but it sends a very bad message to the international community." [3]

All of this makes for valuable background reading now that Donald Trump has become president. During his campaign he suggested that Japan and South Korea should pay more for their own self-defense and perhaps consider developing nuclear weapons of their own. In his first year as president, he inflamed tensions with North Korea after it tested nuclear weapons and missiles. As is common in this age, journalists, politicians and bureaucrats seem completely oblivious to the obligations to abolish nuclear weapons that the United States, South Korea and Japan agreed to long ago by ratifying the Non-Proliferation Treaty. At least North Korea had the decency to withdraw from the NPT when it decided it no longer wanted to honor its obligations.

Notes

[1] Yoshiko Obara (小原 良子), *Thanks for the Nukes (Genpatsu Arigato, 原発ありがとう)*, (Tokyo: Komichishoubou, 1988), ISBN 978-4-7705-4116-1. (Author's translation of title).

[2] Joseph Trento, "United States Circumvented Laws To Help Japan Accumulate Tons of Plutonium," *National Security News Service*, April 9, 2012, https://dcbureau.org/201204097128/national-security-news-service/united-states-circumvented-laws-to-help-japan-accumulate-tons-of-plutonium.html.
See also this interview with this Joseph Trento: James Corbett, "The Secret US-Japan Nuclear Program—GRTV Feature Interview," *Global Research TV*, May 8, 2012, https://youtu.be/hufcDj2wG4U.

[3] Yuri Kageyama, "Japan's Pro-Bomb Voices Grow Louder Amid Nuke Debate," *Associated Press*, July 31, 2012, http://bigstory.ap.org/article/japan-pro-bomb-voices-grow-louder-amid-nuke-debate.

Afterword, Acknowledgements, Dedication

At this point the reader may see a lack of cohesion or a strong conclusion to this book, but this may be unavoidable for a work that arose from what started as an informal journal seven years earlier, without being conceived as a book at that time.

The book ends here with a chapter about Japan's accumulation of plutonium, but there is no particular reason for this choice, except to leave the reader to contemplate the non-peaceful implications of the legacy of the 20th century promotion of "atoms for peace." With the book title, I promised to make a case for eliminating both nuclear energy and nuclear weapons, so perhaps this last chapter emphasizes the point I have tried to make: the so-called peaceful applications of nuclear energy and the military applications of nuclear energy might be separable in an ideal world, but not in this world.

Otherwise, the last chapter suggests no definitive end point to this study of the nuclear age, and this inconclusive finish may be fitting for a book about a problem that all future descendants of the human race will have to contend with. As the Canadian scientist Gordon Edwards has stressed, "While the nuclear age in terms of nuclear energy may be winding down, the age of nuclear waste is really just beginning, and people are going to have to get more involved, not less involved, more involved to make sure that these wastes are handled properly, and that doesn't mean abandoning them." [1]

The best thing about writing the blog and this book, aside from providing some educational merit readers might find in it, was the amount of friendly collaboration it led to. Family and friends read the blog regularly and offered encouragement, or stayed politely silent when I was being too outrageous for their liking. There were also many new friends who contacted me through email and social media. I thank them all for supporting me in this cause which is one of the most discouraging to take up: not the sort of struggle that attempts to avoid a tragedy, but the sort that

involves facing a tragedy that has already occurred and limiting its future harm as much as possible. We may not succeed, but we choose to speak out because surrender would only guarantee that the worst will come to pass.

One comment I received on a few occasions was the question: Who are *you*, anyway, to be talking about this? Some people think that by speaking out, the writer is demanding to have attention or that the writer is making a claim to being special in some way. I've always found it difficult to respond to this concern. I will attempt to do it here by relating an anecdote.

During the summer of 2011, I conducted my own amateur radiation survey of my neighborhood in suburban Tokyo after having spent several months educating myself about radiation measurement, nuclear physics, radionuclides, and the impact of the Fukushima Daiichi meltdowns. When the schools opened in the fall, I went to the local elementary school that my children attended and asked the principal if anyone had a plan to remove the soil in places that had become hotspots of radiation since the catastrophe occurred 200 kilometers away. He was surprised to see the notes and photos I had showing gutters and drainage areas that had gamma readings ten times above the average reading from the center of the playground. The school ground had been declared safe before this, below the actionable limit of 0.20 microsieverts per hour that required topsoil removal. (One school in the northern part of the Narita had to remove all the topsoil on its playground, but other schools in the city had been declared clear. This situation illustrated the random distribution of fallout that had come down in the rain in March 2011.)

The principal treated my concerns with respect. He made some calls, then came up with a plan to order the teaching staff to form a cleanup brigade after school hours the next week. It was a very amateur but normalized procedure now, and a contrast to the way such contamination would have been handled by a professional hazmat team in normal times, if it had been just a matter of a small, isolated spill of radiation.

Officials from city hall came out to do their own readings. I joined the volunteer effort in which the teachers and a few parents spent a several hours that week hauling the tainted soil to a corner of the grounds where the children couldn't play. I never found out what the plan was for its ultimate disposal. There was an unfriendly chill from the teachers and the city workers toward me. They knew I was the guy who had caused them all this extra "unnecessary" work dealing with a hazard that, to their judgment, may not have required action. But at least I showed up to help out.

The point of relating this story is to mention that the first question the principal asked me was, "Are you a specialist in this field?" He was

reasonable enough to not dismiss my concerns just because I was not a nuclear physicist. He took me seriously and responded with the cleanup program described above, but it was interesting that he asked this question so reflexively, and I thought quite a bit about what it means to be an expert, and how to explain to people why I had the audacity to write so much about a matter "outside of my field."

I did so because I believe we defer too readily to expertise on matters which actually shouldn't be trusted to the "experts" at all because most often they are compromised by their career and financial interests in their field of expertise. Most apparently arcane matters are actually apprehensible by anyone who makes an effort to understand them. Technology has upended the lives of everyone, so we all have a right and an obligation to question how it is applied, which is a question of ethics, not of science or technology.

With some effort, most people can grasp, for example, the essential difference between chemical energy and nuclear energy, or the distinctions in the meanings of isotope and atom, without having to feel intimidated by the "experts." As for the historical, sociological and moral considerations involved in the use of nuclear energy, there are no licensed experts or authorities. Noam Chomsky explained the problem with popular notions of expertise long ago in his essay *The Responsibility of Intellectuals*:

> To anyone who has any familiarity with the social and behavioral sciences (or the "policy sciences"), the claim that there are certain considerations and principles too deep for the outsider to comprehend is simply an absurdity... scholar-experts construct a "value-free technology" for the solution of technical problems that arise in contemporary society, taking a "responsible stance" towards these problems... This consensus among the responsible scholar-experts is the domestic analogue to that proposed, internationally, by those who justify the application of American power in Asia, whatever the human cost... the statements of sincere and devoted technical experts give surprising insight into the intellectual attitudes that lie in the background of the latest savagery. [2]

In other words, technical and scientific expertise has no relation to questions of morality and social value, and in fact it may intentionally or inadvertently lend support to "the latest savagery." This is why I proceeded to write as a non-expert, and I make no apology for it.

Another issue Chomsky discusses on the responsibility of intellectuals

is his argument that academics must speak out on the critical social issues of their day, even those outside of their areas of expertise, because they have job security and work in institutions that have a very strong tradition of protecting their speech. Few other segments of society have the time, the security, and the experience in research and writing, to speak out independently, so the silence of academics, or their uncritical support of the status quo, is inexcusable.

I may be deluded about my own self-importance. I'm never going to be as quotable as Chomsky, but this argument was what convinced me to put aside my designated research specialty focused on putting the English language into the minds of Japanese youth. I found the earthquake-tsunami-meltdown syndrome quite traumatic, even though I was only marginally affected by it compared to the victims who really suffered. More than ever, I was convinced that my field (English as a Foreign/Second Language) had to be more concerned with the social and political implications of language education, and that the purposes of language education needed to be broadened.

English education in Japan has been centered around consumerism, individualism, employment and, worst of all, standardized testing. I joined the Center for Glocal Studies research group (publisher of this book) because it seemed to be a group within which I could work on creating awareness among English learners that there was a globalization from below, not just that which comes from above and tells students to achieve a high TOEIC score to take a place in the corporate world. The *lingua franca* of the world does not have to be seen as a tool of domination by the Anglo-American power bloc that dominated the 20th century. It is now also a medium of communication for an international community that is creating its own networks and discourses about environmental and social shocks.

Thus it is that I claim that my writings on the nuclear age should be construed as research in language education, or as materials with which people can learn the English language while they learn much else and find a reason to appreciate information and voices from outside their native land.

I admit that my claim is stretching the conventional conception of what should concern a specialist in teaching English as a foreign language. However, I went in this direction because I feel it is the lack of substance in foreign language learning that is a significant factor in de-motivating learners. In Japan especially, I have always suspected that many of the shortcomings in English education exist because there is a great deal of unspoken resentment about having the learn the language of the victor, and to learn it for purely mercenary reasons delivered from on high.

In centuries past, the learning of the languages of fallen empires, Latin and Greek, was considered synonymous with the learning of the knowledge of classical civilization. I may be deluded to think we could adopt the same approach to teaching English—the language of a falling empire—in the non-English-speaking world, but I believe anyone who has the ability to become a university student in Japan (and likewise in many other countries) would also have the ability to self-educate in the technical aspects of English that still remain to be learned after the previous six years of study, if the intellectual culture were stimulating enough to interest the learner. This is my rationale for undertaking this research over the last seven years, and I express my gratitude to my colleagues at Seijo University for accepting my interest in this approach which, superficially, appears to have nothing to do with my designated area of "expertise."

This discussion of expertise is also my lead-in to my acknowledgments and thanks to all the people who encouraged me and contributed to the writing of this book. Even though many of them were the designated experts with doctorate degrees in the related fields of the natural and social sciences, they had subsumed in their approach what Chomsky wrote above about not leaving important matters to the experts. They never questioned my qualifications or my right to tread on their turf. They knew that such action by "non-experts" is precisely what they want to see arising from their efforts to educate the public. They welcomed, assisted and encouraged all my efforts. I should add that I received such support even from a few people who disagreed with my anti-nuclear stance, or parts of it.

Acknowledgments of friends, family, and colleagues are listed in alphabetical order, with the "experts" and established authors mingled among them. Their associated organizations and websites are mentioned when appropriate. Some of these people interviewed me on their podcasts, others offered extensive, ongoing help, while others responded once to an email inquiry or just talked over ideas when we met in person. They might be surprised to find themselves listed here, but I have not forgotten the time they took to give some input to my writing:

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And, finally, I want to add a dedication to a person whose suffering is related to my reasons for writing this book. I took up this task because I believed it was a catastrophic health issue that required much more attention than it receives, and I was healthy enough to do it for the people who were not. One of the questions I covered in this book is whether we are better off because we no longer die in great numbers from infectious diseases, or whether we are worse off because of chemical and radiological degradation of the natural environment. The techno-optimists have one answer. Indigenous people and other marginalized groups have another.

Over the years I was writing the book, there were several people around me who died prematurely from cancer (causes unknowable)—three of my children's teachers, and one terribly sad case of a high school graduate who held on long enough to attend our university's entrance ceremony but passed away from leukemia before classes commenced a week later.

Closer to me is the person to whom I want to make the final dedication, my sister-in-law, Darlene Roth Riches, who passed away before her time after being ill during the years when I was writing this book. The last thing I wanted to do was make her think about all the dreadful topics I was researching, so I won't say she belongs in the list of people who helped with the project, but when she was healthy she was always a great listener and always took an interest in whatever I was working on. She was a dedicated and caring nurse, devoted wife to my brother, generous aunt to my children, and precious member of our family.

Notes

[1] Gordon Edwards, “The Age of Nuclear Waste is Just Beginning,” *Dianuke.org*, February 14, 2018, interview conducted August, 2015, http://www.dianuke.org/dr-gordon-edwards-age-nuclear-waste-just-beginning/.

[2] Noam Chomsky, “The Responsibility of Intellectuals,” *New York Review of Books*, February 23, 1967, http://www.nybooks.com/articles/1967/02/23/a-special-supplement-the-responsibility-of-intelle/.