


Spring 2016

# Their swords, our plowshares: "Peaceful" nuclear weapons, propaganda, and Cold War memory expressed in film: 1959-1989

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Their Swords, Our Plowshares: "Peaceful" Nuclear Weapons, Propaganda, and Cold War

Memory Expressed in Film: 1949-1989

Michael St. Jacques

A thesis submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

In

Partial Fulfillment of the Requirements

for the degree of

Master of Arts

History

May 2016

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## Dedication

For my wife, my children, my siblings, and all of my family and friends who were so supportive of me continuing my education. At the times when I doubted myself, they never did. Nothing I could say would ever sufficiently express my gratitude toward them, nor could I ever let them know how important they are in my life. A humble thank you will have to do.

## Acknowledgements

This work is the culmination of countless hours of research, writing, and editing, but I would not have been able to do it at all if not for the support, guidance, and knowledge provided by certain key individuals. I am indebted to all of the history professors at James Madison University, but I owe a particular debt of gratitude to my thesis readers and examiners, Dr. P. David Dillard, Dr. Steven Guerrier, Dr. Maria Galmarini, and Dr. Alison Sandman. Dr. Dillard, as the graduate director, convinced me that it was in my best interest to attend the history graduate program at James Madison University and he was right. His advice, continued support, and wisdom have kept me going when times got tough. Dr. Guerrier was my thesis director and a font of information who not only suggested more resources than I could not possibly use, but also kept me grounded when I started to overthink the minutiae. His encyclopedic knowledge of the Cold War made research easy. Dr. Galmarini has been a solid supporter of my scholarship as well as a respected critic and confidante whose advice has been invaluable. When I overlooked the minutiae, she rightfully reminded me that I do so at my own peril. I chose Dr. Sandman for my thesis committee precisely because she is tough and knowledgeable: I did not want my thesis to suffer from a lack of constructive criticism and insight that would, in the end, make me a better scholar. Lastly, I would like to thank Dr. Gabriel Lanier whose advice and support early on in the thesis-writing process helped make the latter stages more bearable. As I leave to pursue my Ph.D. in history, I will look back at all of my professors here as more than teachers, but as mentors and friends. Thank you all so very much.

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## Abstract

During the Cold War, both the United States and the Soviet Union developed nuclear weapons as tools of warfare and diplomacy. Immediately following the Second World War, American attitudes toward the atomic bomb were overwhelmingly positive. Once the Soviet Union developed their own atomic bomb and the United States lost the atomic monopoly, attitudes started to shift. After the first hydrogen bombs tests, public sentiment, as demonstrated in film, became markedly negative. To counter these negative attitudes and portray their nuclear weapons as peaceful tools instead of weapons of mass destruction, both the United States and the Soviet Union developed programs for peaceful applications of nuclear weapons called Operation Plowshare and Nuclear Explosions for the National Economy respectively. Two particular peaceful nuclear explosion projects, the Sedan test at the Nevada Test Site and the Chagan test at the Semipalatinsk Nuclear Test Range in Kazakhstan, were developed to test the feasibility of creating artificial lakes with atomic bombs. Both countries detonated nuclear weapons underground to make craters large enough for a lake, but the Soviet Union diverted a river to fill theirs while the United States left theirs dry.

They then made dangerously misleading propaganda films based on an incomplete, or even poor, grasp of the consequences of residual radioactivity and fallout to promote those programs. Hollywood's reaction to the propagation of nuclear weapons was to make films with either overt or subtle anti-nuclear messages, screening one or more of the genre approximately two years after a seminal nuclear or disconcerting political event. Those efforts, both pro-nuclear Soviet and American propaganda as well

as anti-nuclear propaganda in the form of popular culture, specifically film, conformed to theories of propaganda as outlined by the sociologist Jacques Ellul. This thesis utilizes Jacques Ellul's theories of propaganda and primary sources such as film, posters, newspapers, government documents, and scientific findings, as well as some secondary source material, to demonstrate what the various sides were trying to do in terms of swaying public opinion toward a particular image of nuclear weapons. It also grants some perspective on current "us" versus "them" mentalities.



## Introduction

The use of propaganda as a means of influencing people is nothing new, but the use of film as a medium of influence, relatively, is. As a means of persuasion, film was an excellent medium for the United States and the Soviet Union to showcase their nuclear arsenals, and they did just that. However, from 1951 to 2002 over fifty feature-length films and made-for-television movies made nuclear war, nuclear terrorism, or nuclear accidents and contamination their subjects. From the clearly fantastical *Godzilla*, *Planet of the Apes*, and *Superman IV: The Quest for Peace* to the all too frighteningly plausible *Failsafe*, *Threads*, and *The Day After*, to the documentary and potentially documentary *Silkwood*, *Iranium*, and *Thirteen Days*, it was clear that the motion picture industry disagreed with the United States government.<sup>1</sup> With nuclear technology allowing for larger, more efficient bombs and the military industrial complex producing them at alarming rates, Hollywood and its foreign analogues declared war on atomic weapons and atomic power. The reason for this was a growing public discomfort with the specter of nuclear war looming over them. Although the United States and the Soviet Union projected power with the threat of nuclear weapons, they garnered public support for their policies with propaganda. The public, conversely, used propaganda to display their displeasure with those same nuclear weapons.

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<sup>1</sup> Several of these films figure prominently in Chapter 4. In the interests of clarity, those films will be cited in their entirety at the appropriate points. Christopher Reeve, Gene Hackman, Margot Kidder, et al., *Superman IV: The Quest for Peace*, DVD, Dir. Sidney J. Furie, 1987 (Los Angeles: Warner Home Video, 2006); Meryl Streep, Kurt Russell, Cher, et al., *Silkwood*. DVD, Dir. Mike Nichols, 1983 (Los Angeles: MGM, 2003); Shohreh Aghdashloo, *Iranium*, DVD, Dir. Alex Trueman, 2011 (Washington, D.C.: Clarion Fund, 2012); and Kevin Costner, Bruce Greenwood, Shawn Driscoll, et al., *Thirteen Days*, DVD, Dir. Roger Donaldson, 2000 (Toronto: Alliance Atlantis, 2005).

One of the greatest contributions to the field of cinematic propaganda is Sergei Eisenstein's *The Battleship Potemkin*.<sup>2</sup> This 1925 Soviet propaganda film portrays the victorious, proletarian-esque mutiny aboard the eponymously named ship after sailors protested poor food conditions and the captain ordered what he considered the just execution of the conspirators. After one of the conspirators is killed, he lies on the pier as if a beloved national hero lying in state as crowds gather to pay homage. The people of Odessa rise in support of the sailors only to have the Tsar's Cossacks violently repress the popular uprising. The *Potemkin* shells the tsarist headquarters and sails off victoriously. In a tense standoff, the battleship must run through an Imperial Russian Navy squadron, but meets with fraternal cheers and passes without incident.

Although twenty-first century viewers might laugh at the blatantly pro-proletariat message that the film conveys, it was deemed so influential, so dangerous that it has been banned at various times in England, France, and the United States. The film was so inflammatory, in fact, that Joseph Stalin considered its message *too* revolutionary and banned its showing in the Soviet Union.<sup>3</sup> As a tool of mass communication, the moving pictures of the twentieth century were almost as powerful a weapon as the atomic bombs that followed them during the Cold War. Both the United States and the Soviet Union attempted to use film to their own advantage by making propaganda designed to make nuclear weapons seem more akin to tools than weapons, and those who opposed nuclear weapons used film to swing the pendulum of opinion the other way.

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<sup>2</sup> Aleksandr Antonov, Vladimir Barsky, Grigori Aleksandrov, et al., *Battleship Potemkin*, DVD, Dir. Sergei Eisenstein, 1925 (Delta, 2004).

<sup>3</sup> Robert Sklar, "Battleship Potemkin," *Encyclopedia Britannica*, <http://www.britannica.com/topic/Battleship-Potemkin> (accessed April 17, 2017).

According to Cold War propagandists, there were three types of people living in the United States and the Soviet Union: those with power, the oppressed, and the armed factions (be they police, the military, or other armed agents) who enforce that oppression. From the perspective of the Soviet Union, solely wealthy capitalists and the politicians that supported them, the oppressed proletariat, and the police and military who acted as agents of the wealthy and powerful in the suppression of the weak and poor inhabited the United States.<sup>4</sup> For Americans, the Soviet Union had a similar three-tier power structure wherein the Party bosses ran roughshod over the slavish, ignorant workers and violently, often surreptitiously, enforced the will of the Party through the Committee for State Security (Komitet Gosudarstvennoy Bezopasnosti or KGB), the People's Commissariat of Internal Affairs (Narodnyi Komissariat Vnutrennikh Del or NKVD), and the Soviet Army. The Soviets, according to the Soviets, were peaceful and only hoped to coexist in a world threatened by US imperialism. The Americans, according to themselves, were the stalwart defenders of freedom trying to keep Communist aggression and the spread of Marxist-Leninism at bay. Neither side admitted to territorial expansion and the spread of militaristic influence. Neither side held the monopoly on earnestness.

Outside of commercial brand advertising, the Cold War saw some of the biggest binary propaganda campaigns of the Twentieth Century. Like Coca-Cola and Pepsi, Chevrolet and Ford, McDonalds and Burger King, the two competing ideologies utilized mass media campaigns to bolster their own particular brand of economic and political

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<sup>4</sup> The oppressed proletariat were, according to Soviet propagandists, comprised primarily of homeless, jobless, and feckless whites and violently oppressed minorities (usually blacks) whose numbers seemingly dwindled daily due to the rampant lynchings and police brutality. Racial tensions and Jim Crow laws reinforced this view and the United States unwittingly contributed to Soviet propaganda due to its policies during the 1950s and 1960s. This will be discussed further in Chapter 1.

supremacy. Contrary to what advertising mavens would have the public believe, there is no rule stating that a person must choose to consume either a Whopper or a Big Mac in exclusivity. In a world that does not easily adhere to black and white renditions of anything, both the Soviet Union and the United States managed to give the best commercial and psychological minds working at advertising agencies throughout the world a run for their money in their attempts to sway their own citizens, as well as potential economic and political allies, toward ideological brand loyalty.

Both the United States and the Soviet Union used propaganda to influence national and international opinion in favor of their particular political, cultural, and economic agendas and, although they had different messages and targeted their audiences with their own particular methods of propaganda, there really was not much difference between the two in terms of degree of belligerence and scope. Both superpowers utilized psychological and sociological methodologies that Jacques Ellul codified and explained. Jacques Ellul, the noted Twentieth Century philosopher, sociologist, theologian, and law professor, wrote his magnum opus *Propaganda: The Formation of Men's Attitudes* in 1962, which influenced how people thought about propaganda as a tool of government. Ellul's observations regarding propaganda, especially when examining the Soviet Union and the United States during the Cold War, ring true. Ellul's criteria for propaganda figures prominently in the first chapter. Furthermore, there was a reactionary body of film that tried to counter those pro-nuclear attitudes with clearly anti-nuclear themes intended to sway public opinion and possibly policy. This approach differs from previous works on Cold War film because it looks at the subject from the viewpoint of both pro and anti-nuclear propaganda as opposed to solely monolithic cultural perspectives. This thesis also

explores the question of what each side of the debate did, when they did it, and why they did it.

The depth and breadth of material available to study this topic properly is far from limited. In fact the sources, both primary and secondary, are so plentiful that the problem is that there are far too many resources to list, describe, and analyze properly within the scope of a paper of this length. This is an issue that came to light not during the research phase wherein mountains of evidence was readily available and gathered, but during the writing phase when the data quickly became overwhelming. Even scraping the surface of the topic, examining both Soviet and American propaganda in one thesis of the appropriate length would be a herculean task bordering on the impossible. For this reason, this paper will be broken down thematically into four main chapters to cover certain aspects of Cold War propaganda relevant to the topic.

The first chapter will discuss what propaganda is, based upon several varying definitions. The chapter will discuss the preferred method within this paper for assessing propaganda (Ellul) and explain why that method was chosen. The chapter will then discuss several examples of the kinds of Cold War propaganda that the United States and the Soviet Union were producing. The second chapter will discuss Operation Plowshare and its application as propaganda, as well as its real world ramifications. The third chapter will discuss the Soviet counterpart to Operation Plowshare, the Nuclear Explosions for the National Economy program, its propaganda aspects, and its ramifications. The fourth chapter will discuss the effect that nuclear weapons and, perhaps, the effect of such pro-atomic propaganda efforts had on public opinion and the reaction thereof in the form of popular culture; thus demonstrating memory. Finally, I

conclude the paper by demonstrating that both Plowshare and its Soviet counterpart Nuclear Explosions for the National Economy were, indeed, propaganda efforts by each country's nuclear proponents designed to help prop up the nuclear weapons industry without concern about their own citizenry while popular culture rejected that propaganda.

There is a sizable literature on propaganda both as an academic subject and as a political tool in the Cold War. Political scientists such as Jacques Ellul and Michael Parenti, as well as numerous world leaders and information ministries, have opined as to the nature of propaganda, public information, and popular culture and media. Many, such as Harold Lasswell, Dorothy Blumentstock, John Clews, F. Bowen Evans, and even the United State government wrote about communist propaganda, mostly during the Cold War, and the tactics and effects thereof. These books do reference films, but none of these authors discusses the use of atomic weapons for peaceful purposes and the movies made to promote them (the atomic weapons?) as propaganda. And although Paul Loeb, Philip Fradkin, and Kate Brown talk about nuclear culture, living in contaminated areas, and the devastating effects of nuclear weapons production and testing, they do not specifically look at the two nuclear lake tests with regard to their effect on the public in terms of propaganda, nor do any of them address the representation of nuclear weapons in pop culture as a backlash against that propaganda.<sup>5</sup>

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<sup>5</sup> For modern opinions on propaganda, see Jacques Ellul, *Propaganda: The Formation of Men's Attitudes*, (New York: Vintage Books, 1973); and Michael Parenti, *Inventing Reality: The Politics of the Mass Media*, (New York: St. Martin's Press, 1986); For Cold War era and pre-World War Two thoughts on communist propaganda, see Frederick Baghoorn, *Soviet Foreign Propaganda*, (Princeton: Princeton University Press, 1964); John C. Clews, *Communist Propaganda Techniques*, (New York: Frederick A. Praeger, 1965); F. Bowen Evans, ed., *Worldwide Communist Propaganda Activities*, (New York: Macmillian, 1955); and Harold D. Laswell, and Dorothy Blumentstock, *World Revolutionary Propaganda: A Chicago Study*, (New York: Alfred A Knopf, 1939). For nuclear culture references, see Kate Brown, *Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters*, (Oxford: Oxford University Press, 2013); Philip L. Fradkin, *Fallout: An American Nuclear Tragedy*, (Tucson: The University of Arizona

There is also a vast, and contentious, historiography on collective memory. However, to infer that history is the only discipline that deals with the concept of collective memory is to be disingenuous. Psychologists, sociologists, anthropologists, and historians have all contributed to their particular fields of collective memory studies and all have slightly, or vastly, different definitions of the term as well as theories explaining the phenomenon. As this paper is not nearly comprehensive enough to delve into the arguments surrounding collective memory, and the numerous theories surrounding it, in the depth and breadth that a thorough study of the subject demands, a simplified, synthesized definition of the term will have to suffice. For the purposes of this paper, collective memory is the “memory of two or more people from a specific social group, or subgroups within a larger group, passed down from generation to generation.” And, since collective memory fades from generation to generation, that memory shifts as time passes. That is, the collective memories changes with time. It is also important to understand that collective memory for one group within a smaller group may be different from that of the whole.

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Press, 1989); and Paul Loeb, *Nuclear Culture: Living and Working in the World's Largest Atomic Complex*, (Philadelphia: New Society Publishers, 1986).

## Chapter One: Propaganda and the Cold War

Before there can be any real discussion as to how and why the Soviet Union and the United States used propaganda, one must first have a definition of propaganda. According to *The Oxford Handbook of Propaganda Studies*, “the scope of propaganda is biblical.”<sup>6</sup> That is, the roots of modern propaganda as a means of disseminating one’s particular ideology lie within the Catholic Church and its reaction to the Reformation. Derived from the Latin root word *propagare* meaning “propagation,” the modern improper noun is derived from the original proper noun in the term *Congregatio de Propaganda Fide* which was a “a congregation of the Roman curia having jurisdiction over missionary territories and related institutions” established by Pope Gregory XV in 1622.<sup>7</sup> In short, the term was neutral in its original incarnation and gained its more distasteful aspects through connotation in relation to questionable aims much later on in history. But considering that Church doctrine and faith were, after all, ideological in nature, it stands to reason that propaganda’s eventual adoption by nation states as a means of proliferating political, social, and economic ideology is almost a foregone conclusion.

It would be naïve, however, to consider only the neutral definition of propaganda as it has been and continues to be utilized in the modern world. When the term “propaganda” arises in either the spoken or written word, images of Joseph Goebbels, the

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<sup>6</sup> Jonathan Auerbach and Russ Castronovo, *The Oxford Handbook of Propaganda Studies*. (Oxford: Oxford University Press, 2013), 1.

<sup>7</sup> Merriam-Webster, “Propaganda,” *Merriam-Webster.com*, <http://www.merriam-webster.com/dictionary/propaganda> (accessed April 14, 2015). Auerbach and Castronovo, 2-3.



Minister of Propaganda in Nazi Germany, invariably arise in the minds of many. This is far from unwarranted as he was perhaps the master of 20<sup>th</sup> century propaganda. From 1933 to 1945, Goebbels manipulated Germany's media and German minds to his own sinister ends. Although it might be a stretch of the imagination to suggest that Hitler would not have risen to power without Goebbels, that rise would have certainly been more difficult without pliable minds receptive to Hitler's hate speech. The Holocaust was a result of Hitler's hate speech and draconian policies; that hate and those policies flourished because pliable minds did not question what was happening. Those minds were pliable because of Goebbels' propaganda reinforced by Hitler's brutal, state terror. This is, perhaps, why the more disturbing definitions of propaganda as "the spreading of ideas, information, or rumor for the purpose of helping or injuring an institution, a cause, or a person" and "ideas, facts, or allegations spread deliberately to further one's cause or to damage an opposing cause" seem to have more traction than the more neutral varieties.<sup>8</sup> This is why Goebbels comes to mind when one hears the word "propaganda" instead of Dr. Seuss.<sup>9</sup>

There are certain key factors present in effective propaganda, according to noted French sociologist, philosopher, and law professor Jacques Ellul. In order to work, propaganda had to address the individual and the masses as one: there was no differentiation between the two because they were one and the same.<sup>10</sup> Propaganda had to

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<sup>8</sup> Merriam-Webster, "Propaganda," *Merriam-Webster.com*, <http://www.merriam-webster.com/dictionary/propaganda> (accessed April 14, 2015).

<sup>9</sup> Beloved children's book author and political cartoonist Theodore Geisel, aka Dr. Seuss, was employed by the United States War Department as a propagandist and even before he was officially employed as such, he acted on his own to make hawkish, propagandist commentary in his political cartoons. Dr. Seuss, "Gee, It's All Very Exciting... But It Doesn't Kill Nazi Rats," <http://libcom.org/forums/history/need-help-finding-information-anti-nazi-propaganda-campaigns> (accessed November 20, 2014).

<sup>10</sup> Jacques Ellul, *Propaganda: The Formation of Men's Attitudes* (New York: Vintage Books, 1973), 6-8.

be total. That is, the purveyors of propaganda had to use every means at their disposal to get their message across be it “the press, radio, TV, movies, posters, meetings, [and] door-to-door canvassing.”<sup>11</sup> Lastly, propaganda had to be “continuous and lasting” like a river slowly eroding a canyon through solid rock.<sup>12</sup> Ellul believed that resistance to propaganda was fleeting. As long as the propaganda was a permanent onslaught of ideological indoctrination, fleeting ideas counter to it had no chance. It had to be everywhere, all the time.

Ellul claimed that propaganda, “as commonly conceived,” had to be political in that a particular group targeted a different particular group with a particular goal or aim. It had to be agitational in nature, driving others to action such as violent revolt or disloyalty. It had to be vertical in that the message or goal of the propaganda was directed from the top downward. And, it had to be irrational in that it followed no real logical progression but instead elicited emotional responses entirely devoid of real logic and critical thinking. Ellul also opined, however, that there were four other categories of propaganda beyond the commonly conceived variety. The first of these categories is sociological propaganda, which is more hegemonic in nature. The group practicing sociological propaganda is not directed to do so nor is the propaganda itself directed by higher echelons, but the messages convey themselves via presupposition. Integration propaganda, which is a unifying propaganda as opposed to divisive propaganda, is used to make its subjects feel a member of a specific group and therefore any disloyalty to, or disunity from, that particular group would feel uncomfortable. Horizontal propaganda is

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<sup>11</sup> Ellul, 9.

<sup>12</sup> Ellul, 17-20.

when leaders interact, and give the appearance of parity, with the hoi poloi. Finally, there is rational propaganda which completely forgoes emotion and irrationality by utilizing facts and figures to convey its message. Of course, this does not imply that the facts and figures utilized are accurate, but they convey a sense of accuracy by their very application.<sup>13</sup>

This is how propaganda worked, or at least was supposed to work during the Cold War. It very much separated the world of the competing ideologies into two very separate, very distinct camps wherein one was wrong, or evil, and one was correct, or good. It is difficult to say whether Cold War propaganda was a precise tool in clumsy hands, like a gorilla wielding a scalpel, or a blunt instrument in skilled hands, like a surgeon wielding a hammer, but what is easy to state is that propaganda was the tool of “They.” Those propagating propaganda knew that they were doing so but did not always publicly couch their efforts in that kind of terminology. Propaganda is what the “They” did and was therefore not the purview of rational, reasonable ideologies to which “We” subscribe and which “We” support. This “us versus them mentality” which absolves one party while vilifying the other is, of course, utter nonsense; all purveyors of propaganda either were, or at the very least should have been, cognizant of this.

However, to mention friendly propaganda efforts, especially during the Cold War but even today, is to risk being grouped together with the likes of Joseph Goebbels instead of Dr. Seuss and the latter is far more appetizing of a comparison than the former if one wishes to be seen as sane and safe as opposed to psychotic and despotic. Behind

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<sup>13</sup> Randal Marlin, “Jacques Ellul’s Contribution to Propaganda Studies,” in Auerbach and Castronovo, 351-352.

closed doors, both the Soviet Union and the United States were well aware of the fact that they were engaged in the dissemination of propaganda and couched their classified, official language in precisely those terms.<sup>14</sup> Ironically enough, euphemisms for propaganda branches from the People's Commissariat for Enlightenment in the early Soviet Union to modern incarnations such as the vestigial Cold War era United States Central Intelligence Agency's Psychological Strategy Board belie their mission by the conspicuous absence of the word "propaganda" in their names.<sup>15</sup> The primary propaganda arm of the Soviet Union, the Agitation and Propaganda Section of the Central Committee Secretariat of the Communist Party (Agitprop), directed propaganda but worked in conjunction with less nefarious-sounding agencies such as the Ministry of Culture of the Union of Soviet Socialist Republics and the State Committee for Publishing.<sup>16</sup> In the United States, the Federal Bureau of Investigation and the Central Intelligence Agency continued the tradition of using innocuous nomenclature to hide propaganda activities in plain sight through the United States Information Agency.<sup>17</sup>

It is interesting that the Soviet Union and the United States of America engaged in propaganda so much that they needed to have specific organizations within their

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<sup>14</sup> Memorandum by the Director of the Central Intelligence Agency, with the Unanimous Concurrence of the Intelligence Advisory Board, "Survey of the Function of the Monitored Press and Propaganda Broadcasts of Foreign Powers," March 5, 1946, [http://www.foia.cia.gov/sites/default/files/document\\_conversions/50/CIG\\_Directive\\_No\\_1\\_Survey\\_of\\_Foreign\\_Broadcast\\_Media\\_25\\_Feb\\_1946.PDF](http://www.foia.cia.gov/sites/default/files/document_conversions/50/CIG_Directive_No_1_Survey_of_Foreign_Broadcast_Media_25_Feb_1946.PDF) (Accessed March 18, 2016).

<sup>15</sup> Minutes, Twelfth Meeting of the Psychological Strategy Board, Room 5104, New State Building, U.S. Department of State, Washington, D.C., May 8, 1952, [http://www.foia.cia.gov/sites/default/files/document\\_conversions/5829/CIA-RDP80R01731R003300430018-4.pdf](http://www.foia.cia.gov/sites/default/files/document_conversions/5829/CIA-RDP80R01731R003300430018-4.pdf) (accessed April 15, 2015).

<sup>16</sup> Allen W. Dulles, "The Position of Propaganda and the Mechanism therefore in the Soviet System," August 19, 1958, [http://www.foia.cia.gov/sites/default/files/document\\_conversions/5829/CIA-RDP80B01676R004200090031-5.pdf](http://www.foia.cia.gov/sites/default/files/document_conversions/5829/CIA-RDP80B01676R004200090031-5.pdf) (accessed March 16, 2016).

<sup>17</sup> McGeorge Bundy, "National Security Action Memorandum No. 330," April 9, 1965, <http://www.presidency.ucsb.edu/vietnam/showdoc.php?docid=90> (accessed April 17, 2016).

respective governments to manage the dissemination of information. It is equally curious that other countries not aligned with either the US and NATO or the USSR and Warsaw Pact nations felt no, or negligible, need to engage in propaganda against either superpower to such an extent that they needed entire government agencies to handle the workload. This is more than likely because the competing superpowers felt threatened by each other's ideologies whereas countries with no particular allegiance to either system felt no need to malign either the Soviet Union or the United States to their advantage. It may have also been wiser to resist engaging in any anti-superpower propaganda lest they raise the ire of either. Or it may simply have been the case that smaller, non-aligned countries simply did not have the resources to carry out the continuous onslaught required of good propaganda?

Considering how afraid the United States was of communism and the Soviet Union, and how afraid the Union of Soviet Socialist Republics was of the United States and capitalism, one begins to wonder why they were so terrified of each other. The answer is most likely misunderstanding of intentions exacerbated by the very propaganda that was meant to secure the competing ideologies. The more propaganda there was, the more intentions were misunderstood, the more fear prevailed, the more propaganda was made to counter the rival ideology, and so on in a self-propagating model of fear and loathing. This line of thinking led to the idea that there was a communist agitator in every American factory and there was a counterrevolutionary capitalist in every Soviet collective. While there may not have been an agent in every factory and every collective,

there certainly were some and there certainly were efforts to support those agents either by propaganda or by the denial thereof by censorship.<sup>18</sup>

Cold War propagandist rhetoric trickled down from the highest echelons on both sides. President Harry Truman not only employed the tactics of propaganda by extolling the virtues of the American system, but by maligning the Soviet system using his position as a bully pulpit. In an April 20, 1950 speech, he said of Soviet propaganda:

In many other countries today, the papers print about foreign affairs only what their governments tell them to print. They can't add anything, or cut anything. In the democracies, the papers have a free hand. Only in a democracy is there such mutual trust and confidence among citizens that a private group is given such an all-important role in determining what the Nation as a whole shall do. [...] Communist propaganda is so false, so crude, so blatant, that we wonder how men can be swayed by it. We forget that most of the people to whom it is directed do not have free access to accurate information. We forget that they do not hear our broadcasts or read impartial newspapers. We forget that they do not have a chance to learn the truth by traveling abroad or by talking freely to travelers in their own countries.<sup>19</sup>

The target of Truman's derision is very clearly the totalitarian Soviet regime with all of its centrally controlled, state-run media. What is ironic about the speech is that he derides the Soviet system as disallowing a choice of media outlets to its citizenry thereby disallowing free thought based upon a wide variety of sources giving differing opinions. He condemns the Soviet state-sanctioned political narrative, yet suggested the need for a similar, unified, domestic narrative. Earlier in his speech, he states:

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<sup>18</sup> Assassination Archives, "Church Committee Report, Book III: Supplementary Detailed Staff Reports on Intelligence Activities and the Rights of Americans," pp. 5 of 995. [http://www.aarclibrary.org/publib/church/reports/book3/html/ChurchB3\\_0006a.htm](http://www.aarclibrary.org/publib/church/reports/book3/html/ChurchB3_0006a.htm) (accessed April 30, 2015).

<sup>19</sup> Harry Truman, "Address on Foreign Policy at a Luncheon of the American Society of Newspaper Editors," annual convention of the American Society of Newspaper Editors, Hotel Statler, Washington, D.C., 2:00 pm, April 20, 1950, *The American Presidency Project*, <http://www.presidency.ucsb.edu/ws/?pid=13768> (accessed March 16, 2016).

One vital function of a free press is to present the facts on which the citizens of a democracy can base their decisions. You are a link between the American people and world affairs. If you inform the people well and completely, their decisions will be good. If you misinform them, their decisions will be bad; our country will suffer and the world will suffer. [...] Most of you are meeting that responsibility well--but I am sorry to say a few are meeting it very badly. Foreign policy is not a matter for partisan presentation. The facts about Europe or Asia should not be twisted to conform to one side or the other of a political dispute.<sup>20</sup>

Here it is very clear that Truman is trying to control the narrative of world events by controlling, or at least exerting pressure upon, the press. What does not fit the narrative is not a presentation of the facts in order to “inform the people well and completely” but a violation of the “mutual trust and confidence among citizens” that Truman seemingly lauds. However, Truman is by far not a singularity vis a vis utilizing his status as global leader to influence opinion utilizing propaganda.

In a speech delivered to the voters of Moscow’s Stalin Electoral District on February 9, 1946 Josef Stalin himself lauded the Soviet system over all others and chided the foreign press because,

the foreign press on more than one occasion asserted that the Soviet social system was a "dangerous experiment" that was doomed to failure, that the Soviet system was a "house of cards" having no foundations in life and imposed upon the people by the Cheka, and that a slight shock from without was sufficient to cause this "house of cards" to collapse. Now we can say that the war has, refuted all these assertions of the foreign press and has proved them to have been groundless. [...] Incidentally, after the lessons of the war, [the foreign press] no longer dare to come out and deny the viability of the Soviet state system. The issue now is no longer the viability of the Soviet state system, because there can be no doubt about its viability.<sup>21</sup>

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<sup>20</sup> Harry Truman, “Address on Foreign Policy at a Luncheon of the American Society of Newspaper Editors,” annual convention of the American Society of Newspaper Editors, Hotel Statler, Washington, D.C., 2:00 pm, April 20, 1950. *The American Presidency Project*, <http://www.presidency.ucsb.edu/ws/?pid=13768> (accessed March 16, 2016).

<sup>21</sup> Josef Stalin, *Speech Delivered to Meeting of Voters*, Stalin Electoral District, Moscow, Russian Soviet Socialist Republic, February 9, 1946, *Seventeen Moments in Soviet History*,

This is, of course, the great leader bloviating as neither Stalin, the Cheka, nor any other authority within the Soviet Union cowed the foreign press and they continued to print whatever opinions they pleased, including prognostications of communism's demise.

Stalin and his heirs all the way to Gorbachev, however, did not fear their domestic press corps because they controlled the dissemination of all information within the Soviet Union. This does not mean that they did not need to resort to propaganda outside of public appearances and speeches, of course, because they still had to address any information that leaked into the Soviet Union by unofficial means such as the foreign press corps or Radio Free Europe. In the absence of real or artificial information supporting the Soviet system, rumor could have taken hold and that rumor might not have been in the party's best interest. They had to act in some way.

As testament to the Soviet Union's disdain for the foreign press, they featured them prominently in the 1967 propaganda cartoon short, "Prophets and Lessons." In the movie "Prophets and Lessons," the Soviet Union sought to show that every portent of failure predicted by the capitalist nations eventually met with failure. They drew no distinctions between capitalists and monsters, capitalists and Nazis, capitalists and the press, and capitalists and the military industrial complex. All were one in the same according to "Prophets and Lessons" and all were equally doomed to failure. Throughout the course of the film, the cartoonish, hawkish, obese and barely human caricature of a



*Figure 1*



capitalist (*Fig 1*) morphs form to suit his role but always briefly reverts to the press as portrayed by a fortuneteller wearing a flowered cowl (*Fig 2*). From clawed magnate to fortuneteller to Hitler to media tycoon to thinly veiled Vietnam era American general, the capitalist is foiled at every turn by the staunch and resolute Soviet worker (*Fig 3*).<sup>22</sup>



Figure 2

In the final few moments of the film, the Vietnam general caricature, clutching an atom bomb in one hand and a torch in the other, performs a bizarre war dance to American 1960s' era surferesque rock as he prepares to ignite a powder keg (*Fig 4*).



Figure 3

4). The Soviets deliver an ominous warning to the West not to overstep their bounds but in all reality, the only ones who would ever see this movie were the Soviets themselves (*Fig 5*). This was not a response to an actual external threat so



Figure 4

much as a rhetorical reassurance to the Soviet citizens that the Politburo was firmly in control of the situation and that all was well. After all, who would the audience have been? The title, “Prophets and Lessons,” has the Soviet communists teaching the “lessons” to the capitalist “prophets” while employing the double



Figure 5

<sup>22</sup> M. Vladimirov, “Proroki i Uroki,” *Animated Soviet Propaganda: From the October Revolution to Perestroika*, Prod. Soyuzmultfilm Studio, 1997. DVD, Kino Video, 2006.

entendre of maligning religion, as prophecy and fortune telling, without having to outwardly denounce Russian Orthodoxy.<sup>23</sup>

“Prophets and Lessons” complies with much of Ellul’s conception of propaganda. It is exceedingly political in nature in that the Soviets targeted a particular group, the foreign press and capitalists, with the goal of keeping capitalism at bay and dissuading Soviet citizens from believing anything the foreign press predicted. It forwarded the Soviet agenda. It was vertical as the Politburo, through Agitprop, controlled the narrative. It was agitational in that it was meant to rouse patriotic feelings within its domestic viewers and inspire fear in the few foreigners that viewed it. It relied, at least partially, on facts and figures yet was sociological in nature as it was also meant to pull the Soviet people together. Lastly, it was irrational as it conveyed history in a stilted and biased light.

Both the Soviet Union and the United States had to play upon the fear of the “other” and paint their adversaries in the most negative light possible. Each side had its own particular agenda within the framework of propaganda that Ellul described. They needed to demonstrate particular failures and shortcomings within each particular system while simultaneously bolstering their own. For the Soviets, they needed to demonstrate the failure of the western capitalism in general and the United States, as the bastion of western democracy and a rival economy, in particular. They wanted to show the sharp division between classes and especially wanted to point out the divides between the haves and the have nots as well as the stigma of racism. Naked American aggression was a

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<sup>23</sup> M. Vladimirov, “Proroki i Uroki,” *Animated Soviet Propaganda: From the October Revolution to Perestroika*, Prod. Soyuzmultfilm Studio, 1997. DVD, Kino Video, 2006.

constant theme as was the wholesome, amicable, and superior nature of the Soviet citizen.

The United States had its own propaganda goals, which were not completely dissimilar to those of the Soviet Union. The U.S. also wanted to show the aggressive nature of the Soviet Union. But where the Soviets pointed out the inherent aggression of the American system and the inevitable eventuality of the American proletariat classes rising up in rebellion, American propaganda showed the average Soviet citizen as either a bloodthirsty soldier or KGB agent, a mindless automaton functioning as a unit of production within the Soviet system, or both. They pointed up the failures inherent in the communist system and mocked it as a failure even in the face of technological achievements such as Sputnik and Yuri Gagarin's famous first foray into space. In cases where the Soviet Union was advancing, they were doing so in the interest of martial strength. American propagandists also had to counter Soviet propagandists on the home front because control of the press and free speech was not as absolute in the U.S. as it was in the USSR. In some cases, this propaganda took the form of state-supported censorship of academics and socialists and in others it took the form of smear campaigns against the same.<sup>24</sup>

The adversaries used multiple approaches to the same goal and each side had its particular favorite when it came to media outlets. The USSR tended to prefer posters, cartoon films, and of course news outlets to educate the masses. The United States used

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<sup>24</sup> Assassination Archives, "Church Committee Report, Book III: Supplementary Detailed Staff Reports on Intelligence Activities and the Rights of Americans," pp. 5 of 995. [http://www.aarclibrary.org/publib/church/reports/book3/html/ChurchB3\\_0006a.htm](http://www.aarclibrary.org/publib/church/reports/book3/html/ChurchB3_0006a.htm) (accessed April 30, 2015).

news outlets as well, but tended to prefer Hollywood style movies, radio, and sometimes comic books. Both sides used the sinister “Other” approach of not directly identifying the enemy. By allowing the recipient of the propaganda to decide for him or herself whether they were talking about particular nations like the US or USSR, particular political ideologies such as democracy or totalitarianism, or economic systems such as capitalism or communism, the propagandists removed agency from themselves and granted it to the recipient. If everyone *knew* that the bad guy was a communist, then the United States was not pointing the finger of blame: everyone just knew that the villain was not us, therefore it must be them. Likewise, if the reader was a Soviet citizen, the villain had to be from the warmongering West. This is the integrational aspect of propaganda and it is probably the most insidious of all of the characteristics because it is neither blatant nor subtle, but so sublime that it seems natural.

The following two Soviet propaganda posters do not directly attack the United States, but it is very clear from the juxtaposition of scenarios within each work that the intended targets of the political criticism are capitalists who seem



Figure 6

a lot like Americans, or at least western Europeans, through appearance or inference. In the first poster (*Fig 6*) from 1950, the two men on the left are happily planning and building something that purports to be useful somehow in the middle of the desert, perhaps in Central Asia judging from the dress of the man on the

right.<sup>25</sup> Above them are the words “WE are turning deserts into a bright future” while the words on the right above the picture of devastation and war in what appears to be a tropical setting state “THEY are turning cities and villages into deserts.”<sup>26</sup> There is no need to state who “we” are and who “they” are because the sociological and integrational aspects of propaganda take care of that for the reader: “we” and “they” are already ingrained in the psyche of the viewer as well as a sense of belonging to one of those two groups. If there is ever any doubt, the figures depicted on the side of the poster with warm, bright colors are the friend, the dark, ominous tones depicted the foe.

In the second poster, from 1949, the scene is again divided into two, distinct parts representing “us” and “them.”<sup>27</sup> The main title of the poster plainly states “Two Worlds-Two Plans” (*Fig 7*). The top of the illustration shows two Soviet men creating a plan for implementing an agricultural scheme, above which are the words “We are planting life,” while the picture below shows a capitalist and a general of some sort creating a plan for



Figure 7

military bases throughout Europe. Below the bottom picture are the words “they are sowing death.” Once again, they are clearly referencing the United States and although it

<sup>25</sup> S. Sakharov and K. Kubginov, “My, Oni,” poster, 1950, USSR, <http://www.russianposter.ru/archive.php?sid=Ggveh2YVvTUkFk&rid=30110281800014> (accessed April 17, 2016).

<sup>26</sup> Based on the date of issue and scenery, this may be a reference to the French war in Indochina from 1946-1954 more so than America directly, but is clearly an indictment of militaristic Western imperialism as seen through the lens of Soviet propagandists.

<sup>27</sup> Mikhail Cheremnykh, “Dva mira-Dva plana,” poster, USSR, 1949, <http://www.russianposter.ru/archive.php?sid=Ggveh2YVvTUkFk&rid=31010236600004> (accessed May 17, 2016).

is true that the U.S. was building military bases in Europe, it is completely irrational to believe that the Soviet Union was only using its industrial and military might to aid in farming to the detriment of defending their homeland.

When one system, political ideology, or cardinal direction was not specifically mentioned, it was nonetheless clear who the protagonists and antagonists were because of the sociological and integrational implications of propaganda. Of course, there were always propaganda attacks using direct and unmistakable references to either side and often contrasting the two. Many, if not all, of these types of attack appear to have their genesis in Soviet propaganda.

In the figure to the right, (Fig 8) there is the blatant implication that America's economy is floundering by dropping to negative twenty-two percent of production while Soviet production, on the other hand, has



Figure 8

increased twenty percent.<sup>28</sup> On the left is the American capitalist clutching “military plans” in his hands and looking quite ill, while on the right is Soviet laborer looking very hale and clutching some sort of long-handled tool. The title of the poster is “The same years, but different ‘weather’.” There is no longer a need for integrational propaganda characteristics as the target is blatantly stated: the U.S. However, here there is the very

<sup>28</sup>V. Govorkov, “Te zhe gody, da raznie pogody,” poster, USSR, 1950, <http://www.russianposter.ru/archive.php?sid=INVALID&rid=30179337900104> (accessed April 17, 2016).

clear, yet inaccurate, use of facts and figures. The poster gives no date and therefore it could be used in perpetuity if the Party wanted to do so. It gives no sources upon which those numbers are based and states that the decline of American production in conjunction with the marked increase in Soviet production is a clear indicator of the “far-reaching, powerful upsurge in Soviet industry.” This poster is particularly ironic as the Soviets spent more money on big industry, with great attention paid to military production, while the United States manufactured both industrial and consumer goods and enjoyed a thriving economy for most of the Cold War. There is still no rationality, there is still a message of us versus them, there is still an agitational aspect in that the poster is meant to encourage Soviet workers to work even harder, and it is clearly at the Politburo’s direction. In short, this follows all of Ellul’s criteria.

Although the martial aspects of Soviet propaganda were popular, another prevalent theme was the alleged failure of the social system within the United States. In the next poster, Agitprop takes education under the capitalist system to task (*Fig 9*).<sup>29</sup> The top part of the poster claims that, from 1951-1955, the construction of city and village schools increased about 70% in comparison with the previous five years. The second half of the poster claims



Figure 9

that, in the USA, the portion of the budget allotted to social programs and welfare is one percent while defense spending is around seventy-four percent. It further claims a U.S.

<sup>29</sup> The poster cites the years 1951-1955: the poster was made in 1953. V.M. Briskin and K.K. Ivanov, “V SSSR, v SShA,” poster, USSR, 1950, <http://www.russianposter.ru/archive.php?sid=Ggvvh2YVvTUkFk&rid=30120147400014> (accessed April 17, 2016).

illiteracy rate of ten million people and that one third of children do not attend school. This approach is both irrational and utilizes Ellul's previously mentioned facts and figures tactic.

A rational comparison would have shown the growth of school construction as a constant and would have also taken into account the need for building new schools in the war-torn Soviet Union as well as taking into account any pre-existing deficits in the number of Soviet schools. It is also a complete fabrication of facts and figures. The bottom picture does not show what time period involved, but the reader can ostensibly extrapolate that both pictures address the same time period. If that is the case, U.S. defense spending never got above 52% of the total U.S. budget (usually around 38 % but peaking during the Korean War in 1952 and 1953) and education and welfare were steady at around 22% of the budget for that time period.<sup>30</sup> The illiteracy rate claimed on the poster was similarly inflated to more than twice the actual rate in the United States at the time.<sup>31</sup> The average Soviet citizen, however, had no access to data outside the confines of these posters and therefore was at the mercy of state sponsored, "facts and figures" style information that was little more than statistical disingenuousness.

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<sup>30</sup> USGovernmentSpending.com, "1951,"

[http://www.usgovernmentspending.com/total\\_spending\\_1951USbn](http://www.usgovernmentspending.com/total_spending_1951USbn) "1952,"

[http://www.usgovernmentspending.com/total\\_spending\\_1952USbn](http://www.usgovernmentspending.com/total_spending_1952USbn) "1953,"

[http://www.usgovernmentspending.com/total\\_spending\\_1953USbn](http://www.usgovernmentspending.com/total_spending_1953USbn) "1954,"

[http://www.usgovernmentspending.com/total\\_spending\\_1954USbn](http://www.usgovernmentspending.com/total_spending_1954USbn) "1955,"

[http://www.usgovernmentspending.com/total\\_spending\\_1955USbn](http://www.usgovernmentspending.com/total_spending_1955USbn) (accessed April 23, 2015).

<sup>31</sup> Institute of Educational Sciences, "National Assessment of Adult Literacy: 120 Years of Literacy," *National Center for Education Studies*, [https://nces.ed.gov/naal/lit\\_history.asp](https://nces.ed.gov/naal/lit_history.asp) (accessed April 23, 2015).

United States Census Bureau, "1950 Fast Facts," *United States Census*, [https://www.census.gov/history/www/through\\_the\\_decades/fast\\_facts/1950\\_fast\\_facts.html](https://www.census.gov/history/www/through_the_decades/fast_facts/1950_fast_facts.html), (accessed April 23, 2015).



Although Soviet poster propaganda fit Ellul's need to address the faceless individual of the masses and certainly filled the role of omnipresent and lasting influence, they were only one form of media. To utilize the full force of their propaganda machine, the Soviets had to use all available media outlets. They certainly utilized the press on a daily basis, but that sort propaganda was easily identified by Soviet citizens and actually gave rise to derisive, sarcastic humor as a result. According to a dissident Soviet émigré teaching Russian in California during the later years of the Cold War, one common joke was that "there was no 'Truth' in the 'News' and no 'News' in the 'Truth'."<sup>32</sup> According to this same teacher, Soviet citizens that were members of the intelligentsia easily saw through the propaganda in news print and quickly grew cynical. Their less critical proletarian brethren, however, either did not or did not show it as much. For those less capable of, or interested in, reading, there were always pictures. If, as the cliché goes, a picture is worth a thousand words, a moving picture is worth millions.

Take for example the animated movie "The Shareholder" from 1963. This short film demonstrates a clear understanding of capitalist ideas mixed with a clear misrepresentation of the capitalist system that is part ignorance and part hyperbole. The movie depicts Michael Chase, an employee of, and shareholder in, the Pearson Corporation (*Fig 10*). According to the film, the fictional Pearson Corporation is a one hundred year old company with its roots in piracy, slavery, and arms sales. It is now a company that produces and sells arms but with its tentacles in



Figure 10

<sup>32</sup> The Russian term is "Нет правды в *Новости*, а нет новостей в *Правде*." The crux of the joke is this: the two, primary newspapers in the USSR were *Pravda* and *Novosti*, meaning "The Truth" and "The News" respectively. Anna Jones, Defense Language Institute, Monterey California, 1990.

consumer goods. The owners laud Chase for his stock ownership and the movie shows him clad in a tuxedo and enjoying an impossibly rich and lavish lifestyle for the average worker even if they did own stock (*Fig 11*). His life is replete with all of the modern



Figure 11

conveniences and luxuries, including a gorgeous girlfriend, modern appliances, a new model car, and leisure time, all purchased on installment and credit (*Fig 12*). The company



Figure 12

masters decide to automate production and Chase loses his job. His

former bosses explain to him that his one share is more important as a symbol of ownership than actual money. He is portrayed as a dupe incapable of understanding that his share is worthless, even though it might not be actually worthless.<sup>33</sup>

By the end of the movie, he has lost his home, his conveniences, his money, and even his girlfriend to the capitalist masters of industry who use the surplus to throw extravagant birthday parties for their dogs, which make the social pages of the newspapers (*Fig 13*). He eventually sells



Figure 13

his skeleton to make ends meet (*Fig 14*), but even loses that money when he enters a car race, wherein the drivers seem forced to enter the “suicidal” race and the organizers offer “free funerals,” and is injured in a crash:



Figure 14



Figure 15

<sup>33</sup> Klimenty Mints, “Aksioner,” *Animated Soviet Propaganda: From the October Revolution to Perestroika*, Prod. Soyuzmultfilm Studio, 1963. DVD, Kino Video, 2006.

because his skeleton is not whole and in good condition he had to forfeit his wages from the race (*Fig 15*).<sup>34</sup> This is clearly an extreme and ludicrous example, but it is the kind of propaganda that the Soviet citizens were actually fed. This is what the Communist Party wanted their citizens to believe. Irrationality.<sup>35</sup>

Along with class, race was a favorite topic of Soviet propaganda starting in the fifties and gaining more and more prominence as the American Civil Rights Movement took hold in the sixties. Fueled by Lost Cause Civil War mythology and blatant racism, and supported by Jim Crow laws and segregation, southern Dixiecrats determined to revert the social structure back to the mid 19<sup>th</sup> century inadvertently handed the Soviets a pre-fabricated propaganda coups. They need not have done anything beyond translating news reports about the unrest in the United States, yet they did not miss the opportunity to capitalize on all of this. They utilized the boon to its fullest extent through printed posters and film that took an already unseemly chapter in American history and exaggerated it.

In the 1950 propaganda poster, “Freedom American Style,” the artists, B.E. Efimov and N.A. Dolgorukov, exploit the already disturbing situation in the United States to the benefit of the Soviet Union (*Fig 16*).<sup>36</sup> In it, a police officer menacingly stands atop the Statue of Liberty, her lips padlocked shut, brandishing a Billy club before

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<sup>34</sup> During the narration of the car race, the announcer continually refers to the cars as if they were horses in the Kentucky Derby. The cars have names such as “Black Consul,” “Yellow Angel,” and “Snow White.” It is unclear whether the Soviets were trying to portray the drivers as animals set to race, or if they were really as ignorant as to the nature of racing as it seems.

<sup>35</sup> Klimenty Mints, “Aksioner,” *Animated Soviet Propaganda: From the October Revolution to Perestroika*, Prod. Soyuzmultfilm Studio, 1963. DVD, Kino Video, 2006.

<sup>36</sup> B.E. Efemov and N.A. Dolgorukov, “Svoboda po-Amerikanski,” poster, USSR, 1950, <http://www.russianposter.ru/archive.php?sid=Ggveh2YVuTukFk&rid=30120150800014> (accessed April 17, 2016).

the back drop of Wall Street.

Flanking him symmetrically on

either side are four pictures of

“American Freedoms” such as

(clockwise from the upper left)

“Freedom of the Press” which is

controlled by big business, “Freedom of the individual,”

wherein a black man is being lynched by the Ku Klux Klan, “Freedom of Assembly,”

wherein a protest is about to be violently dispelled by armed troops, and “Freedom of

Opinion,” wherein a judge is handing down a criminal sentence against a communist for

his views. Once again, all of this is portrayed in dark, ominous tones very reminiscent of

“they” in the side-by-side comparison posters cited earlier.



Figure 16

Although the poster does employ several of Ellul’s characteristics of propaganda due to its clearly political intent, its agitational nature, and its vertical nature due to the fact that it was no-doubt approved by Agitprop, it was not entirely irrational. There was a clear anti-communist bias in the United States and along with it persecution of communists. The worst part, however, was the lynching scene because that was not nearly as rare an occurrence in the United States as it should have been. Had there only been one or two instances of racially motivated violence in the 1950s, the poster could have been labeled as irrational. Sadly, the historical facts do not support an argument that the poster was irrational based on most of the individual frames and that frame in particular. In short, the line between propaganda and simple fact in this case is almost

non-existent. This is an example of Ellul's rational variety of propaganda which utilizes facts, however accurate or skewed, instead of pure hyperbole.

Fitting in more concisely with Jacques Ellul's prerequisites for good, if there really is "good", propaganda is the 1963 film "Mister Twister."<sup>37</sup> "Mister Twister" is about a former minister turned millionaire who takes his spoiled and pampered family on a vacation to Leningrad at his daughter's behest.

The opening scenes clearly show a caricatured black man in a cigarette ad amongst an orgy of other advertisements plastered on the walls of a large city. The first character in the film is a black man walking sullenly up to building and into the door, only to be punched in the face as a sign flashes "whites only" (*Fig 17*). He and his family take a leisurely cruise across the ocean on a luxury liner while an all-African crew below decks feeds the boilers. "Persons of color" as the film states



*Figure 17*

"are forced to cross the ocean on second class liners" barely visible in the cartoon due to the darkness and gloom (*Fig 18*).<sup>38</sup>



*Figure 18*

<sup>37</sup> S. Marshak, "Mister Twister," *Animated Soviet Propaganda: From the October Revolution to Perestroika*, Prod. Soyuzmultfilm Studio, 1963. DVD, Kino Video, 2006.

<sup>38</sup> S. Marshak, "Mister Twister," *Animated Soviet Propaganda: From the October Revolution to Perestroika*, Prod. Soyuzmultfilm Studio, 1963. DVD, Kino Video, 2006.

The family, and now a monkey, offloads their enormous, smog-belching car at Leningrad and sets off for their luxury hotel wherein Mister Twister discovers that a black man, as cultured and refined as could be, is staying at the same hotel in the next room. Outraged, he states that he will not sleep in the same hotel as a black man, storms out of the hotel with his family, drives off to find another hotel (*Fig 19*). The concierge then initiates a furious telephone campaign, warning all of the concierges in Leningrad not to rent him a room. He



*Figure 19*

eventually returns to the first hotel, hat in hand, begging for a room. The concierge offers them the worst accommodations in the hotel, not even rooms, but allows them to stay (*Fig 20*). In his fitful sleep, Mister Twister has a Dickensian dream of being homeless and without shelter. The



*Figure 20*

next day the concierge offers the Twisters proper accommodations, but warns them that their racist ways will not be tolerated as the hotel is hosting an international peace summit attended by people of every race and color. The next scene is reminiscent of the “It’s a Small World” ride at Disneyland. The concierge has succeeded in his mission to make the Twisters colorblind.

The message of “Mister Twister” is clear: America and Americans are racist and racism is symptomatic of class warfare. Color is not only a mark of ethnicity, but if someone of African descent lives in America, it is also a mark of their station in life.

Ellul's characteristics of propaganda are clearly in play here. The political aspect is that the Soviets need to teach the west a lesson on race relations. This is not irrational as there truly were race issues in America, but the degree of reaction demonstrated by Mister Twister certainly may be. Along with that, the misconception that if one is white, one is necessarily rich and therefore the majority of Americans must indulge in decadent travel based on race is certainly irrational. But the brilliance of this particular propaganda campaign is that there were sociological implications of poor race relations in the United States that supported their assertions. Good. Certainly race would play a recurring theme in Soviet propaganda, but its efficacy would wax and wane depending on the state of race relations in the United States. This is normal as propaganda is fluid in nature.

Although there was no need to constantly hide the adversarial nature of competing ideologies in veils of ambiguity, there were fluctuations in the warmth of relations between the two worlds and that fluctuation determined the severity of the criticism. For example, prior to World War II, anti-German sentiment was rampant in the Soviet Union. Movies by Sergei Eisenstein such as "Alexander Nevsky" portrayed the Germans as historically prone to aggression toward the Russians.<sup>39</sup> The movie was popular but it was prohibited from theaters after the Molotov-Ribbentrop Pact was signed. Once the Nazis initiated Operation Barbarossa, the movie was again released and enjoyed massive support in the Soviet Union. Cold War propaganda encountered similar ebbs and flows,

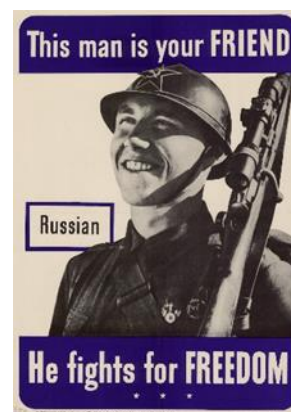
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<sup>39</sup> "Alexander Nevsky" is a movie by Sergei Eisenstein wherein a Russian knyaz (князь), or prince, rallies the disjointed proto-Russian Slavic forces around Novgorod to successfully defeat and repel foreign invaders, namely Teutonic knights. The symbolism is exceedingly clear. Eisenstein, Sergei, Petr Andreevich Pavlenko, Sergei Vasilev, Sergey Prokofiev, Nikolai Konstantinovich Cherkasov, Nikolai Pavlovich Okhlopov, Andrei Lvovich Abrikosov, and IU Temirkanov, *Alexander Nevsky*, 1938, [Irvington, NY]: Criterion Collection, 2001.

but certainly not to the same degree as that directed at Nazi Germany. Prior to World War II, there was a marked distaste for the Soviet Union and an almost palpable fear of communism, arguably justified by the popularity of socialism in some circles during the interwar period, spreading to the United States. There was very real anti-communist sentiment until the outbreak of Operation Barbarossa (*Fig 21*) but again, this quickly changed to suit the political expediencies of the day. The red specter became the Red Army soldier and he was no longer the vile co-conspirator of Hitler, but an ally (*Fig 22*). So there is an established pattern of vacillating U.S. and Soviet attitudes toward other nations depending on the status of their diplomatic relations.



*Figure 21 David Low Cartoon, Britain, September, 1939.*



*Figure 22 US Department of War poster, c. World War Two*

Pre-World War Two, World War Two, and post-World War Two relations are exemplary of the relationship that propaganda plays in international diplomacy and public relations. Russo-American relations are exactly what the governments of those nations want them to be. They shaped their foreign policies by projecting the image of the country they wished to portray and those portrayals depended heavily on the relationship that the two countries enjoyed (or suffered). Much like the Americans, the Soviet people were told who was their enemy and who was their friend. It just happened to be that those relationships changed with the winds of war.



Jacques Ellul's characteristics and categories of propaganda hold true. In each case cited the message was meant to address the individuals and the masses. The methods used were akin to total psychological war using the press, print, and motion pictures. And because of the variety of media resources used and the longevity of the campaigns, it was continuous and lasting. It was political, agitational, most often irrational, and clearly driven by the powers in charge. Facts and figures were often manipulated to suit the needs of the propagandist and some means of propaganda required nothing but hegemonic group think to thrive. Ellul was correct in his assertions and the Cold War was the perfect testing ground for his theories. The United States and the Union of Soviet Socialist Republics used actual testing grounds to further prove the practical applications of his theories

## Chapter Two: The Sedan Test

During the 1964 presidential campaign, Lyndon Johnson's campaign team came up with a terrifying attack ad that struck at the heartstrings of every mother, father, and empathetic registered voter in view of a television set: the Daisy campaign.<sup>40</sup> The commercial shows a precocious little girl of about two years old plucking petals from a daisy. As she reaches the end of her countdown, another more stern and purposeful voice speaks over hers, counting down to *something*. The camera zooms in on the child until the only thing visible is the iris of her eye and then a nuclear weapon explodes sending a hellish mushroom cloud skyward. This one television commercial raised the viewing public's already heightened sense of awareness regarding the threat of nuclear weapons in the hope of elevating that awareness to panic levels. The commercial implied that voting for Johnson's opponent, Barry Goldwater, was tantamount to voting for mass, nuclear infanticide. Goldwater's hawkish campaign rhetoric did little detract from the ad's message. Now, all culpability for an atomic holocaust was laid squarely at the feet of the voting public. Vote for Johnson or vote for annihilation. It only ran once on September 7, 1964, and it only ran on one network, but the ad was effective.<sup>41</sup> Johnson won and, although certainly not the sole reason for victory, the ad clearly made an indelible, and politically palpable, impression on its viewers.<sup>42</sup>

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<sup>40</sup> Doyle Dane Bernbach Worldwide Communications Group, Inc., *The Daisy Ad*, September 7, 1964. <https://www.youtube.com/watch?v=dDTBnsqxZ3k> (accessed January 30, 2015).

<sup>41</sup> Drew Babb, "LBJ's 1964 Attack Ad 'Daisy' Leaves a Legacy for Modern Campaigns," *The Washington Post*, September 5, 2014.

<sup>42</sup> As a result of Republican outrage over the ad, news outlets started showing it over and over again until it had become something of a national event which the American public had seen "ad nauseum." Ibid.

In his inaugural speech, Lyndon Johnson implied that he, unlike his defeated political opponent, was intent on harnessing the atom for the benefit of humanity instead of its destruction. “How incredible it is that in this fragile existence, we should hate and destroy one another,” he said. “There are possibilities enough for all who will abandon mastery over others to pursue mastery over nature.”<sup>43</sup> His obvious reference to the Soviet Union and the Cold War footing upon which each superpower rested is unmistakable. Just as evident among his lofty words was a reference to the massive Sedan test shot two years earlier on July 6, 1962, part of the Plowshare program for reallocating nuclear weapons for peaceful purposes.<sup>44</sup> His implied promises to harness atomic weapons for good were no more altruistic than the weapons themselves. Plowshare was, on some levels, an attempt at engineering on a massive scale, but it was also a public relations campaign on an even larger scale. The U.S. established Plowshare to make the general public feel good about nuclear weapons while simultaneously allowing for more test detonations in an era of ever-increasing anti-nuclear sentiment. Moreover, its greatest public relations project, the Sedan shot, was its greatest failure due to its ramifications.

Positive sentiment toward the atomic bomb in the United States was very strong immediately following World War II. In fact, an August 26, 1945 Gallup poll found that 85% of respondents approved of Truman’s decision to use atomic weapons on Hiroshima and Nagasaki, while only 10% disapproved.<sup>45</sup> In fact, people were 45% more likely to

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<sup>43</sup> Lyndon B. Johnson: "The President's Inaugural Address," January 20, 1965. Online by Gerhard Peters and John T. Woolley, *The American Presidency Project*. <http://www.presidency.ucsb.edu/ws/?pid=26985>, (accessed February 9, 2015).

<sup>44</sup> U.S. Department of Energy, National Nuclear Security Administration, Nevada Field Office, “Sedan Tested Use of Nuclear Explosives to Move Earth,” *NTS Anniversary Newsletter*, January 27, 2015, <http://www.nv.doe.gov/library/publications/newsviews/sedan.aspx> (accessed February 8, 2015).

<sup>45</sup> Gallup, George. *The Gallup Poll: Public Opinion 1935-1971. Volume One*, (New York: Random House, 1972), 520-521.

favor using atomic bombs than poison gas on Japan.<sup>46</sup> For a few years, that kind of sentiment remained and, in some cases, even increased with the use of the word “atomic” in just about anything a consumer could find. One did not have to look very far to find “atomic sales” or “atomic results” or, if one were truly daring, he could buy his sweetheart “Bomb-Site Jewelry” which he could give to her while sipping “atomic cocktails” and watching “Atom Bomb dancers” at a burlesque show.<sup>47</sup> There were even atomic chemistry sets for the kids that came complete with a Geiger counter and samples of the carcinogenic U-238 isotope.<sup>48</sup>



Figure 22 Atomic Chemistry Set with U-238. St. James

Atomic tourism started up with people taking a break from their poker and slot machines and driving to the Nevada Test Site northwest of Las Vegas to witness atomic weapons tests or, more conveniently, just looking out their windows to view them. The

<sup>46</sup> Gallup, 520-521.

<sup>47</sup> James P. Delgado, *Nuclear Dawn: The Atomic Bomb from the Manhattan Project to the Cold War*, (Oxford: Osprey Publishing, 2009), 127.

<sup>48</sup> St. James, “Remembering Fun, Dangerous, and Sometimes Deadly Toys,” *HubPages*, March 11, 2009. <http://st-james.hubpages.com/hub/Remembering-Fun--and-Sometimes-Deadly-Toys> (accessed February 5, 2015).

government made the practice impossible in October 1963 by entering into the Limited Test Ban Treaty, which relegated nuclear tests to the subterranean variety.<sup>49</sup> The innocuous, celebrity status of a weapon as destructive and dangerous, with such a poisonous and long-lived legacy as atomic bombs, however, could not last for long even although vestiges of that era remain in American phrases such as “atomic,” “nuclear,” “going ballistic,” and “bikini” up to the present day. The honeymoon of the United States’ global atomic hegemony lasted only until August 29, 1949 when the Soviet Union tested its own atomic bomb at the Semipalatinsk Nuclear Test Range in Kazakhstan.<sup>50</sup> Codenamed *First Lightning*, the Soviet Atomic bomb put the two adversarial nations on an even footing.<sup>51</sup> Now the United States was no longer the only state to wield “the dread secret and fearful engines of atomic might.”<sup>52</sup> The U.S. was no longer just the master of atomic weapons: it was their slave as well. The popular backlash was almost immediate and that which was not immediate steadily shifted from general goodwill toward atomic weapons to justifiable and well-founded fear.<sup>53</sup>

The horrors of the war in the Pacific and its concomitant U.S. Marines floating dead in the surf of far-flung islands and American POWs languishing as walking corpses

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<sup>49</sup> U.S. Department of Energy, Nevada Operations Office, Office of Public Affairs and Information, “Executive Summary: Plowshare Program,” 31, <https://www.osti.gov/opennet/reports/plowshar.pdf> (accessed January 30, 2015), 22.

<sup>50</sup> David Holloway, *Stalin and the Bomb: The Soviet Union and Atomic Energy 1939-1956*, (New Haven: Yale University Press, 1994), 213-216. Gerard DeGroot, *The Bomb: A Life*, (Cambridge: Harvard University Press, 2005), 145.

<sup>51</sup> “Semipalatinskii Polygon – Tragediya Kazakhskogo Naroda,” *Kazakhi Rossii*, <http://kazakh.orgfree.com/index.php?dn=article&to=art&id=44>, (accessed February 12, 2015).

<sup>52</sup> Dwight D. Eisenhower, “Address before the United Nations, December 8, 1953,” *Bulletin of the Atomic Scientist*, January 1954, 2.

<sup>53</sup> Although public sentiment shifted away from support for atomic weapons, the public attitude toward the bombings of Hiroshima and Nagasaki did not falter much. As late as 2005, 57% of people still supported Truman’s decision to use atomic weapons on Japan with 80% believing that the bombings saved American lives. David W. Moore, “Majority Supports Use of Atomic Bomb on Japan in WWII,” *Gallup News Service*, August 5, 2005, <http://www.gallup.com/poll/17677/majority-supports-use-atomic-bomb-japan-wwii.aspx> (accessed February 11, 2015)

in Japanese prison camps was far behind in the rearview mirror of American collective memory. The only images that remained seemed to be the incinerated Japanese corpses littering the once pristine cities of Hiroshima and Nagasaki. The images of Japanese atomic bomb survivors wandering around a wasteland with their skin hanging off their bodies in singed flaps were burned into the American psyche. With the USSR as a nuclear power, this could happen here. The United States had to act to alleviate the fear that caused Hollywood to make movies and blue-collar workers to dig bomb shelters in their back yards. It was in this environment that Plowshare was born.

Project Plowshare was a United States Atomic Energy Commission project meant to turn nuclear weapons intended for destroying other countries into nuclear tools for terraforming and engineering at home.<sup>54</sup> The idea of using atomic bombs for peaceful purposes was not new. In 1953, President Eisenhower made an address to the United Nations wherein he intimated that harnessing the atom for a tool of peace as opposed to a weapon of war was not only possible, but inevitable. He stated, “The United States knows that peaceful power from atomic energy is no dream of the future,” and that experts needed to utilize the atom to address “the needs of agriculture, medicine, and other peaceful activities.”<sup>55</sup> This time, however, it was different. This time, the United States government actually implemented nuclear bombs themselves instead of the much more nebulous and slightly less menacing “atomic energy.”

In order to understand just what the Atomic Energy Commission was trying to accomplish, a baseline understanding of some nuclear weapons terminology is necessary.

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<sup>54</sup> The United States Atomic Energy Commission is now the Department of Energy.

<sup>55</sup> Dwight D. Eisenhower, “Address before the United Nations, December 8, 1953,” *Bulletin of the Atomic Scientist*, January 1954, 4.

Most important are the terms “yield,” “kiloton,” “megaton,” “fission,” “fusion,” “shot,” “atmospheric burst,” ground burst,” subterranean burst,” and “fallout” as well as the “Alpha,” “Beta,” Gamma,” and “Neutron,” varieties of ionizing radiation. Yield, with regards to nuclear weapons, is the relative explosive strength of a device when compared to a similar amount of TNT. One kiloton of yield is equivalent to one thousand tons of TNT or two million pounds of TNT. One megaton of yield is equivalent to one million tons of TNT, or two billion pounds of TNT.

Atomic weapons are generally divided into two categories: fission devices and fusion devices. Fission is the division of an atom’s nucleus into two, smaller parts. Fusion is a process wherein the nuclei of two separate atoms collide and fuse into one single atom while releasing energy. Fission devices, like those used on Hiroshima and Nagasaki, work by splitting atoms of highly-enriched Uranium (U-235) or atoms of Plutonium (Pu-239) which is the product of a short-lived Uranium isotope (U-239) decaying. Although only found in miniscule quantities relative to the more common U-238, U-235 is the only naturally occurring fissile isotope; Pu-239 must be processed from another Uranium isotope in order to exist.

In small quantities, U-235 and Pu-239 are insufficient to do much more than create heat and radiation sickness as a result of hemorrhaging gamma and neutron radiation above a certain threshold. If enough of either element is concentrated in one place, it can reach critical mass, which is a sustained nuclear chain reaction that creates heat and radiation energy like that in nuclear power reactors. If too much of it is concentrated in one place, a super-critical, uncontrolled chain reaction occurs. The result is what happened over Hiroshima and Nagasaki. Fusion reactions require an immense

amount of energy to occur and must be triggered by the detonation of a fission weapon. In short, the trigger for a thermonuclear device is an atomic bomb. This is, of course, a vast oversimplification of the incredibly complex calculations, the problematic physics, and intricate technological engineering required to coax megatons of energy from a sphere of Uranium or Plutonium slightly heavier, yet smaller, than a bowling ball but it is enough to grasp the subject on a historical basis.

Nuclear test explosions are often called shots. There are three types of shots: atmospheric, or airburst; ground burst; and subterranean, or underground burst. Airbursts are usually detonated several hundred feet or more above the ground like those used over Hiroshima and Nagasaki. Ground bursts are detonated directly on or just above the ground. Subterranean bursts are detonated below ground level, usually at substantial depths. Atmospheric tests tend to suck up dirt from the ground, irradiating it as it rises. This irradiated dust returns to the earth's surface in the form of fallout. Ground bursts are even worse at causing fallout as they are in direct contact with more of the ground and therefore irradiate more dust. Subterranean bursts are the least likely to cause fallout, but if they are used as cratering charges they can cause substantial fallout not quite unlike ground bursts. There are also underwater detonations, but they are not germane to this paper.

Alpha particles are heavy, subatomic particles and only dangerous if they are inhaled, swallowed, or get into open wounds as they are unable to penetrate skin or even paper. Beta particles are lighter subatomic particles and can penetrate skin, but not very deeply. They are harmful if they get inside of an organism, but can be blocked by protective clothing, thin metal, or wood. Gamma radiation is actually in the form of



waves like light. It can travel a mile in open air, easily penetrates most materials, and is akin to x-rays. Neutron radiation is the kind found only in nuclear reactors or emitted from nuclear blasts. Most people never have to worry about this type of radiation and if they do, they probably will not have to worry about it for very long. These are the terms needed to discuss Plowshare.

Originally created in 1957 after years of conceptual discussion, Plowshare was supposed to be the answer to scores of engineering problems by making lengthy, expensive projects quick and relatively cheap. Everything from digging canals, creating rare elements with deep, subterranean blasts, “recover[ing] oil locked in shale” (nuclear fracking), excavating harbors, and creating reservoirs was possible.<sup>56</sup> All of this was promised with little to no risk due to the advent of so-called “‘clean’ nuclear bombs” which featured “drastically reduced fallout” and others that promised no fallout at all.<sup>57</sup> Plowshare was nothing without the public knowing about it, but since the nature of the experiments necessarily confined the explosions to subterranean cratering shots, the effects of underground tests were not readily visible from Las Vegas or any of the other numerous population centers near nuclear testing grounds. The advent of the Limited Test Ban Treaty in 1963 prohibited atmospheric and ground level nuclear tests which made publicity through conventional means, that is a huge, visible explosion, difficult. So the United States Atomic Energy Commission (hereafter AEC) had to act as its own public relations firm.

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<sup>56</sup> Alden P. Armagnac, “Atomic Blasting For Peacetime Feats,” *Popular Science*, September 1958, 102.

<sup>57</sup> Armagnac, 103.

The AEC started its own movie campaign to promote Plowshare and the general concept that atomic weapons were not nearly as dangerous as everyone believed they were. Although admittedly nowhere near the scale that Hollywood's anti-atom campaign proponents could bring to bear, the AEC's campaign was no less vigorous in support of its message. Along with movies showing Air Force officers voluntarily standing under atomic air-to-air missiles as they detonated overhead, which they produced before the Limited Test Ban Treaty went into effect, the AEC made a twenty-eight minute long movie espousing the benefits of nuclear weapons in the role of shovels writ large.<sup>58</sup> This was all part of Eisenhower's Atoms for Peace initiative of 1952 whereby he wanted to take atomic weapons out of the hands of the armed forces and into the "hands of those who will know how to strip its military casing and adapt it to the arts of peace."<sup>59</sup> The key to making the public feel safe about atom bombs was to turn them into atomic tools.

Of course, motion pictures were not the only method that the AEC employed. They also used print media such as magazines and newspapers to get their message of safe nuclear excavation out to the general public. *Life* magazine ran articles either about or mentioning it no less than four times in three issues from November 3, 1961 to June 21, 1963.<sup>60</sup> In December 1970, Plowshare returned to *Life* after seven-year hiatus, but only as a bit part in an opinion piece. Plowshare also found its way into popular technical

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<sup>58</sup> The two kiloton atomic warhead in question was detonated July 19, 1957 sixty-five miles northeast of Las Vegas at 18,500 feet above ground level where the five men were standing. Robert Krulwich, "Five Men Agree To Stand Directly Under An Exploding Nuclear Bomb," *NPR.org*, July 17, 2012. <http://www.npr.org/blogs/krulwich/2012/07/16/156851175/five-men-agree-to-stand-directly-under-an-exploding-nuclear-bomb> (accessed February 4, 2015).

<sup>59</sup> Dwight David Eisenhower, "Atoms for Peace" (speech, 470th Plenary Meeting of the United Nations General Assembly, New York, NY, December 8, 1953), International Atomic Energy Agency, <https://www.iaea.org/about/history/atoms-for-peace-speech> (accessed March 6, 2016).

<sup>60</sup> "Benevolent Bombs, Bacterial Batteries," *Life*, November 3, 1961, 53; "An A-Blast Harnessed for Peaceful Test," *Life*, January 5, 1962, 31-33; "How to Blast Panama Canal II," *Life*, March 15, 1963; "H-Blasted Crater... Twelve Million Tons Deep... Makes a Lab for AEC Men," June 21, 1963.

journals such as *Popular Science* and *Popular Mechanics*.<sup>61</sup> Nevertheless, even though these magazines were rich in pictorial detail, they held very little sway compared to moving pictures. The public relations sections within the AEC handling Plowshare propaganda could also ill afford to leave anything outside of their intended message to chance. So they did not.

In the AEC movie “Plowshare,” the narrator as the voice of the AEC claims, “nuclear excavation offers the potential for providing the practical, economical means” to solving major engineering problems in relatively remote areas.<sup>62</sup> He offers excavation of roadways and railways where it would be time-consuming or dangerous. He offers canals and harbors for commerce. He offers channels and waterways to carry water to arid areas for agriculture and consumption. He offers to move earth for mining minerals. He offers to fix problems previously solved through the implementation of conventional explosives, but he offers to fix them faster and more cheaply than previously possible using nuclear weapons ranging in yield from the hundreds of kilotons to the several megatons range.<sup>63</sup>

The narrator then goes on to explain how scientists and engineers use advanced models, scientific calculations, and the latest computer and technological advances to determine the appropriate yields necessary in specific rock formations to achieve the desired results. The movie shows these scientists and engineers at work looking very

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<sup>61</sup> “Atomic Blasting for Peacetime Feats,” *Popular Science*, (September) 1958: 256-257; Dr. Edward Teller, “We’re Going to Work Miracles,” *Popular Mechanics* 113, no. 3, (March) 1960: 97-101.

<sup>62</sup> Although this movie is listed as “(c. 1961)”, it is clearly made well after that date as the film features the Sedan Test, which did not happen until 1962 and the Dugout Test which did not happen until 1964. U.S. Atomic Energy Commission, “Operation Plowshare [Part 2] (c. 1961),” YouTube, <https://www.youtube.com/watch?v=eIsUMK4-csM> (accessed February 11, 2015).

<sup>63</sup> U.S. Atomic Energy Commission, “Operation Plowshare [Part 2] (c. 1961),” YouTube, <https://www.youtube.com/watch?v=eIsUMK4-csM> (accessed February 11, 2015).

knowledgeable and professional as they make calculations on blackboards and model subterranean explosions on what appears to be a cross between a computer monitor and an oscilloscope. The movie shows technicians emplacing the explosive device for the Sedan experiment while the narrator explains how they developed safety procedures and protocols for conducting Plowshare experiments. The viewer then witnesses the 100-kiloton device detonating and excavating 6,000,000 cubic yards of earth in a matter of seconds resulting in a crater “1200 feet in diameter, the length of four football fields, and 325 feet deep, the height of a thirty-two story building: created in less time than it takes to describe it.”<sup>64</sup> The narrator then goes on to explain that using conventional means to do the same job would require over 2,000 tons of chemical explosives and twenty-five pieces of earth-moving machinery over a period of “at least six months.”<sup>65</sup> It is intended to be very impressive.

The movie does admit that the program “can also present hazards if they are not properly controlled.” According to the narrator, most of the risks associated with the program are of the same variety “encountered in large chemical explosions” except for the radioactivity, which is given short shrift. But people watching the movie should not be unduly concerned with the radioactive aspect of the tests as “the results of Plowshare work in controlling and limiting the radioactivity released by a nuclear explosion have been, and continue to be, highly encouraging.”<sup>66</sup> The narrator claims that a “major part of the radioactivity is swallowed up into the crater” but fails to precisely define the phrase

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<sup>64</sup> U.S. Atomic Energy Commission, “Operation Plowshare [Part 2] (c. 1961),” YouTube, <https://www.youtube.com/watch?v=eIsUMK4-csM> (accessed February 11, 2015).

<sup>65</sup> U.S. Atomic Energy Commission, “Operation Plowshare [Part 2] (c. 1961),” YouTube, <https://www.youtube.com/watch?v=eIsUMK4-csM> (accessed February 11, 2015).

<sup>66</sup> U.S. Atomic Energy Commission, “Operation Plowshare [Part 2] (c. 1961),” YouTube, <https://www.youtube.com/watch?v=eIsUMK4-csM> (accessed February 11, 2015).

“major part.” In the Sedan event, he claims that “only a small fraction of the radioactivity was released into the atmosphere,” then promises a “hundredfold reduction” from the levels of 1962 because modernized weapons designs and placement strategies would make the fallout risk “even less.” The only hazards left after that, he claims, are those associated with conventional explosives. He lists those hazards in order of the danger they present to the local workers and populace, adding the last conventional hazard as the dust cloud. The dust, however, would be radioactive. To prove how safe the process is, the movie shows a subterranean detonation which creates a trench and immediately cuts to two men walking through the crater. The movie implies that, if men are walking through the trench immediately after detonation, then the weapons cum tools must be safe.

The trench in question was a shot called Dugout. The AEC conducted Dugout on June 24, 1964 to test the feasibility of simultaneous cratering detonations creating a trench. They did this on a small scale so as not to waste valuable resources. The scale was so small, in fact, that they did not use atomic bombs for the test at all: they used high explosive, nitromethane.<sup>67</sup> With a cumulative yield of 100 tons, comprised of a row of five twenty-ton charges placed forty-five feet apart, the simultaneous detonation of all five was meant to simulate a nuclear charge, not be one.<sup>68</sup> The men walking in the middle of the trench were not walking through ground zero; they were walking through zero radiation because there never was any there to begin with. Had Dugout been a real atomic

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<sup>67</sup> U.S. Department of Energy, Nevada Operations Office, Office of Public Affairs and Information, “Executive Summary: Plowshare Program,” 31, <https://www.osti.gov/opennet/reports/plowshar.pdf> (accessed January 30, 2015).

<sup>68</sup> U.S. Department of Energy, Nevada Operations Office, Office of Public Affairs and Information, “Executive Summary: Plowshare Program,” 31, <https://www.osti.gov/opennet/reports/plowshar.pdf> (accessed January 30, 2015).

shot, they would have had to wait a minimum of four days to safely cross it and even then their safety would be in question.<sup>69</sup>

The entire reason that the Sedan test happened when and where it did is that a previous test shot, Project Chariot, was scrapped due to the controversy it engendered. The controversy arose as a result of the potential and very real hazards that it posed. Project Chariot was a plan devised in 1959 to create an artificial harbor at Point Hope, Alaska using a 2.4-megaton nuclear device as the main cratering charge with four smaller nuclear devices in the 460-kiloton range to cut the channel from the harbor to the ocean.<sup>70</sup> These explosions would have affected an area roughly half the size of Rhode Island.<sup>71</sup> It was a great plan from the point of view of the AEC's Operations Office in San Francisco, but not so tempting from the point of view of the native Inupiat living a scant thirty miles from the proposed test site.<sup>72</sup> The AEC sent a contract scientist, Don Foote, to conduct feasibility studies of the area.<sup>73</sup> Foote concluded that Project Chariot would disrupt or kill a substantial portion of the wildlife in the area at one of the peak hunting seasons thereby endangering the local populace whose food supplies, to a substantial degree, came from hunting.<sup>74</sup> This was in stark contrast to the AEC's initial surveys which claimed that there was very little wildlife or hunting in the area and was therefore an ideal test

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<sup>69</sup> United States Environmental Protective Agency Office of Radiation Programs, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," Washington, D.C., May 1992, 2-5.

<sup>70</sup> Scott Kirsch, *Proving Grounds: Project Plowshare and the Unrealized Dream of Nuclear Earthmoving*, (New Brunswick, New Jersey: Rutgers University Press, 2005), 72. Nuclear yields: Paul Brooks and Joseph Foote, "The Disturbing Story of Project Chariot," *Harper's Magazine*, 224, April, 1962: 65.

<sup>71</sup> Brooks and Foote, 60.

<sup>72</sup> The Inupiat were the native Eskimo that lived, and still live, in that area of Alaska.

<sup>73</sup> Don Foote is a human geographer. Kirsch, 74.

<sup>74</sup> "During one season, ninety-five percent of the caribou and almost all of the freshwater fish were taken [by the locals] within 25 miles" of blast site. Brooks and Foote, 61.

location. It quickly became evident that the AEC was either not very forthright or gravely misinformed with its initial assessment.

The village council sent a letter of protest to the AEC stating that they objected to the plan and that they wanted guarantees of fair compensation if, and when, things went badly. However, they quite fairly added, “if the U.S. Government and AEC can assure the village that it will not be harmed in any way, by loss of hunting grounds or changes in the way of living, the council will reconsider.”<sup>75</sup> Instead of radiation experts, biologists, or even geologists to assuage the council’s fears, the AEC sent Public Relations representatives from their San Francisco Operations Office.<sup>76</sup> The PR team travelled from village to village showing a film about the safety of nuclear engineering, much like the Plowshare movie previously mentioned, and hosted question and answer forums. The locals grilled them mercilessly and eventually the AEC decided to postpone the test.<sup>77</sup> By 1961, the Point Hope Village Health Council had written President Kennedy in protest.<sup>78</sup> The AEC eventually shelved the plan due to all of the negative press and scheduled Sedan as a far less controversial and potentially safer alternative.<sup>79</sup> It was neither.

The Sedan shot was everything the AEC wanted and more. However, when dealing with nuclear weapons, accuracy is far more important than excess. The technicians at the Nevada Test Site conducted geological site surveys and made numerous, painstaking calculations to make sure that the depth of the detonation, the yield of the detonation, the type of device (fission or fusion), and the type of geological

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<sup>75</sup> Kirsch, 87.

<sup>76</sup> Kirsch, 88.

<sup>77</sup> Kirsch, 88-89.

<sup>78</sup> Brooks and Foote, 61.

<sup>79</sup> Kirsch, 9.

formation within which the detonation would occur were optimal. They used all of this planning to calculate output in terms of crater depth and diameter while mitigating downwind radioactive contamination and fallout. They enjoyed only mixed success. The crater depth and diameter were just what they expected. The amount of radioactive material that did not fall back into the hole, however, was not. The cratering blast from the Sedan shot sent

almost a full kiloton of fissionable products [...] into the atmosphere. Even if, as the AEC later claimed, three-fourths of the radioactive fallout had been deposited within two and one half miles of the crater, that still left 250 tons of radioactive dust and debris to be accounted for beyond this range.<sup>80</sup>

The Sedan shot threw roughly the equivalent weight of one thousand small cars worth of fissionable material into the atmosphere. The Plowshare scientists and engineers still cannot account for two hundred and fifty cars worth of that weight. So where did it all go?

Because the Sedan dust and debris calculations did not match the actual performance that day, the radioactive dust cloud that was supposed to be relatively low reached approximately 12,000 feet above the ground.<sup>81</sup> The cloud traveled northeast toward the distant Salt Lake City passing over, and through, “thirty beagles in wire cages that had been placed twelve, thirty, and forty miles from ground zero.”<sup>82</sup> Because the AEC was using the dogs as test animals to determine inhaled radiation dosages, their mouths were taped shut to ensure that they would breathe through their noses as opposed

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<sup>80</sup> Kirsch, 125.

<sup>81</sup> U.S. Department of Energy Albuquerque Operations Office, “Project Sedan Nuclear Test,” June 1997, [https://www.youtube.com/watch?v=O-f\\_buPFqoc#t=71](https://www.youtube.com/watch?v=O-f_buPFqoc#t=71), (accessed February 2, 2015).

<sup>82</sup> Philip L. Fradkin, *Fallout: An American Nuclear Tragedy*, (Tucson: University of Arizona Press, 1989), 135.



to ingesting the dust. The AEC wanted a clean test. “Four died immediately, three within twenty-four hours, and three within seventy-two hours.”<sup>83</sup> Within forty miles of the event and in the path of the radioactive cloud, the survival rate was only thirty-three percent based on the beagle experiment. Fortunately, for several ranches, Salt Lake City, a large swath of Wyoming, the area just south of Chicago, and the area “between Delaware and North Carolina” that the cloud passed over on its way to the Atlantic Ocean, the levels of lethality decreased substantially.<sup>84</sup> However, the fallout did get into the food supply of the areas over which it passed via ingestion by farm animals. Exposure at the Nevada Test Site was, of course, to be expected.

The AEC claimed publicly that the risks contributed by fallout were minimal, but even within their own organization there were issues of institutional integrity. Although very few organizations are completely transparent regarding potentially unpleasant aspects of their operations, the AEC appears to have shifted policy regarding potential oversight from intransigence to obfuscation. In a 1995 interview former Director of the AEC’s Division of Biology and Medicine, Dr. John Totter, stated “There was some interest, in other [Plowshare] divisions, of ‘boxing in’ biologists so they couldn’t act to – inhibit any of the things they [the physicists and management] might feel necessary – [...] – to promote nuclear energy and sort of carry out their responsibilities.”<sup>85</sup> They even split the Medicine and Biological Divisions in such a way that one became the Biology and Medicine Division while the other became the Operational Safety Division. In this configuration, only one of them would be liable to Congressional oversight: the

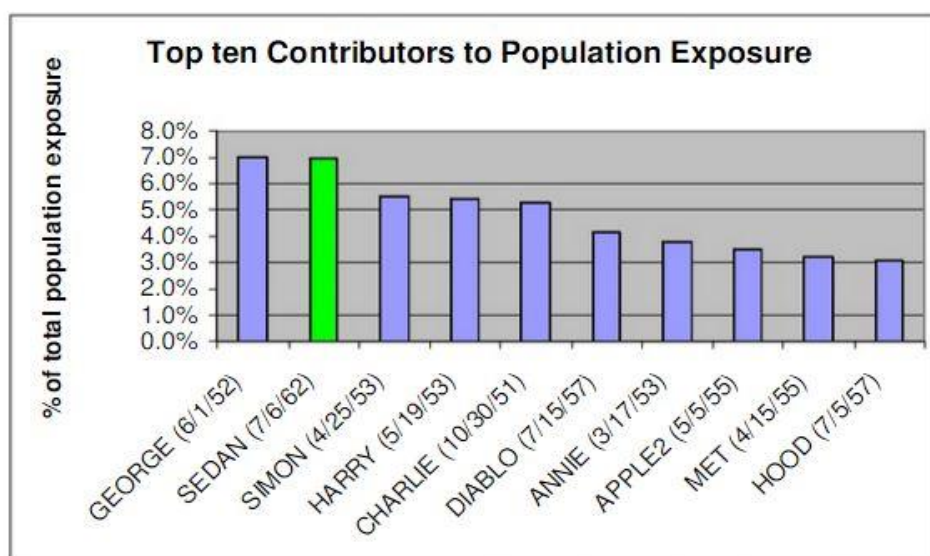
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<sup>83</sup> Fradkin, 135.

<sup>84</sup> Fradkin, 136.

<sup>85</sup> John R. Totter, Ph.D., interviewed by Darrel Fisher and David Harrell, Oak Ridge, TN, January 23, 1995.

Operational Safety Division.<sup>86</sup> By this method, the people running Plowshare could conceivably hide any potentially damaging radiological information that might prove detrimental to the program by processing it under the Biology and Medicine Division. And they did. Fallout claims by the AEC were often underestimated, undervalued, or underreported. Fortunately, other government agencies were more precise with their math and their geography (*Fig 23*).



Ten tests with the greatest contributions to total population exposure. The value for SEDAN is much more uncertain than that for the other tests.

Fig 23 “Appendix E External Dose Estimates from NTS Fallout”

The numbers do not look good for Sedan when viewed as a contributor to radioactive fallout exposure. As a percentage of the total amount of fallout, it ranks up there with atmospheric tests from a decade earlier and even surpasses most. Ten years after some of the worst fallout from the first battery of atmospheric tests, the Sedan

<sup>86</sup> John R. Totter, Ph.D., interviewed by Darrel Fisher and David Harrell, Oak Ridge, TN, January 23, 1995.

engineers could not manage to keep the fallout to safe levels regardless of how much they claimed to be using new and improved methods of “safe” nuclear testing. Furthermore, radiation monitoring activities conducted at the time and at later dates clearly shows the path of Cesium 137 (Cs-137) and Strontium 90 (Sr-90) deposition along the fallout route that the radioactive cloud from Sedan took.<sup>87</sup> Both Cesium-137 and Strontium-90 are “extraordinarily robust and extremely dangerous”<sup>88</sup> (Fig 24).

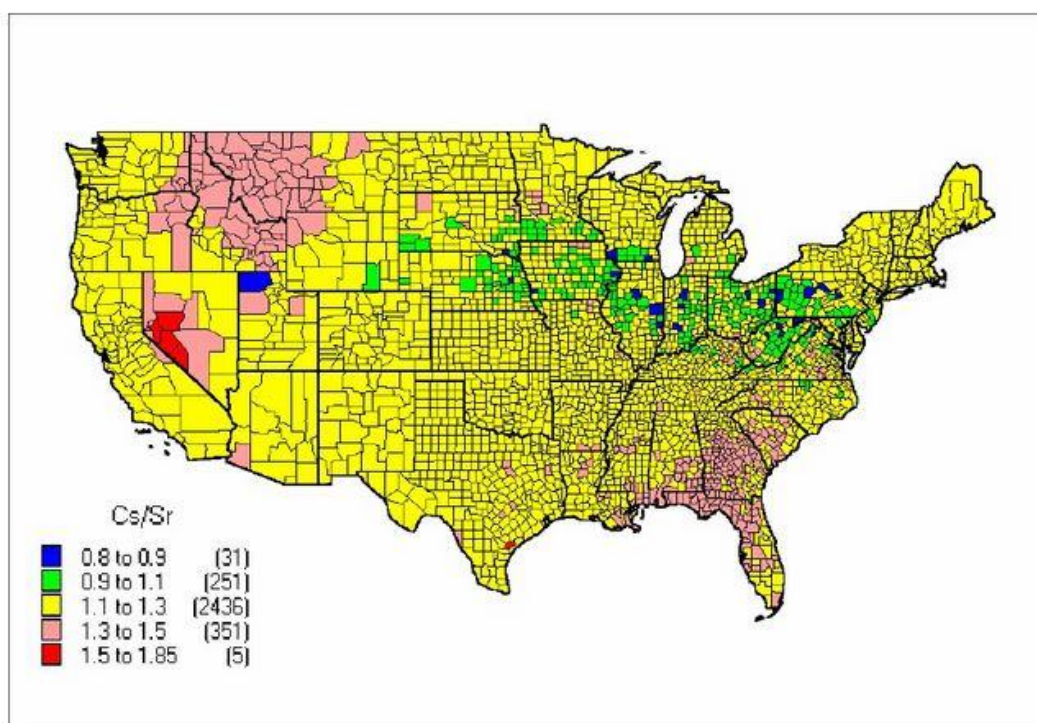


Figure 3. Ratio of Cs-137 to Sr-90 deposition density from all tests. Number of counties in each group shown in parenthesis.

*Fig 24 “Cesium-137 and Strontium-90 Deposits”*

<sup>87</sup> Harold Beck, *External Radiation Exposure to the Population of the Continental U.S. from Nevada Weapons Tests and Estimates of Deposition Density of Radionuclides That Could Significantly Contribute to Internal Radiation Exposure via Ingestion*, Report to the National Cancer Institute in fulfillment of P.O. #263-MQ-909853, November 1, 1999, E-40.

<sup>88</sup> Benjamin Sovacool, *Contesting the Future of Nuclear Power: A Critical Assessment of Atomic Energy*, (London: World Scientific Publishing Company, 2011), 75.

But, does all of this fallout really mean anything to the current generation since the AEC conducted the experiments fifty years ago? Yes, it does. “The study [conducted by the Centers for Disease Control and the National Cancer Institute] found that any person living in the contiguous United States since 1951 has been exposed to some radioactive fallout, and all of a person’s organs and tissues have received some exposure.”<sup>89</sup> Exposure to radionuclides such as Strontium-90 may affect bone marrow in an exposed individual and create an elevated risk of leukemia.<sup>90</sup> Iodine-131 (I-131), another radioactive isotope known to cause thyroid cancer, is sufficiently hazardous to those born after nuclear testing started that the National Cancer Institute has actually established an online risk calculator.<sup>91</sup> Nevertheless, some technicians making careless or even honest mistakes pertaining to calculating potential fallout or being less than forthright when reporting the potential hazards from said fallout alone are not necessarily indicators of integrity issues. Evidence of a command climate wherein the leadership not only tolerated but also demonstrated and encouraged questionable motives and practices however, might.

Plowshare started operations the very same year that the United States and the Soviet Union entered into a voluntary nuclear weapons testing moratorium. As of Halloween 1958, neither side would engage in testing their atomic weapons. These kinds of agreements do not occur spontaneously nor do they happen in a vacuum. Limitations usually precede moratoria and hearings usually precede limitations. The Atomic Energy

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<sup>89</sup> Centers for Disease Control and Prevention, “Radioactive Fallout from Global Weapons Testing,” [http://www.cdc.gov/nceh/radiation/fallout/RF-GWT\\_home.htm](http://www.cdc.gov/nceh/radiation/fallout/RF-GWT_home.htm) (accessed February 10, 2015).

<sup>90</sup> Centers for Disease Control and Prevention, “Radioactive Fallout from Global Weapons Testing,” [http://www.cdc.gov/nceh/radiation/fallout/RF-GWT\\_home.htm](http://www.cdc.gov/nceh/radiation/fallout/RF-GWT_home.htm) (accessed February 10, 2015).

<sup>91</sup> National Cancer Institute, “Individual I-131 Dose and Risk Calculator for Nevada Test Site Fallout,” <https://ntsi131.nci.nih.gov/> (accessed February 10, 2015).

Commission conducted a meeting on May 28, 1958 to discuss both testing limitations and the potential moratorium where Edward Teller, one of the AEC's key atomic weapons researchers, stated unequivocally that "there would be no chance that radioactivity from underground tests could contaminate animals and humans."<sup>92</sup> It was his assertion that test limitations were "overly cautious." This is the same Edward Teller who, in 1942, proposed a hydrogen fusion bomb. Even at his educational and intellectual level, he did not grasp the concept of a fusion reaction requiring a fission reaction as a trigger; it took physicist Hans Bethe a significant part of the summer of 1942 to explain to Teller why it would not work.<sup>93</sup> By August of 1958, Teller was already hard at work developing ways to circumvent any efforts to curtail his work.

In a priority memo to Brigadier General A.D. Starbird, Director of the AEC's Division of Military Application, Teller addressed his concerns about the impending moratorium. He stated that he did not plan to incorporate any "feature of specifically military significance" in their tests, but went on to say that they must continue "research and development of nuclear weapons."<sup>94</sup> He further stated that they should consider a nuclear explosion with a yield equal to or less than the high explosive necessary to create such an explosion as "obviously not a test of a nuclear weapon" but an experiment.<sup>95</sup> Whereas he skirted the rules and stretched the definitions of the word "experiment" early

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<sup>92</sup> Edward Teller as quoted in the minutes of Atomic Energy Commission Meeting 1377, May 28, 1958, Germantown, MD as quoted in Robert C. Williams, and Philip L. Cantelon, *The American Atom: A Documentary History of Nuclear Policies from the Discovery of Fission to the Present 1939-1984*, (Philadelphia: University of Pennsylvania Press, 1985), 194.

<sup>93</sup> Jeremy Bernstein, *Nuclear Weapons: What You Need to Know*, (Cambridge: Cambridge University Press, 2008), 122.

<sup>94</sup> Edward Teller Priority Memorandum to Brigadier General A.D. Starbird, Director, Division of Military Applications, U.S. Atomic Energy Commission, Washington, D.C., August 29, 1958.

<sup>95</sup> Teller to Starbird.

on in the memo, he flat-out suggested dishonesty and described how to circumvent the moratorium later on. He advised that explosions below one kiloton in yield are undetectable by “any of the methods considered realistic by any of the delegations at the Geneva Conference” and ergo the U.S. should continue weapons testing in earnest at levels below 100 tons yield.<sup>96</sup> In this way, they could continue testing nuclear weapons under the auspices of the Plowshare Program while maintaining the entire façade of the Peaceful Atom.

While it is clear that the United States wanted to justify nuclear weapons and nuclear weapons testing by bringing the Plowshare program into existence, it is equally clear that Plowshare was more of a palliative measure than anything of any real substance. Of the 1,149 nuclear tests that the United States conducted between 1945 and 1992, 891 of them were weapons-related and another 100 of them were conducted to test nuclear weapons’ effects.<sup>97</sup> Of the more than one thousand nuclear tests, the United States conducted only “27 Plowshare nuclear explosive tests comprising 35 individual detonations” despite the program’s seventeen-year lifespan.<sup>98</sup> In statistical terms, this means that only 3% of all nuclear tests that the United States ever conducted were for peaceful nuclear purposes despite the fact that the program spanned 37% of the total time that the United States conducted nuclear testing. However, just one of these “peaceful” tests accounts for 7% of the sum total of all nuclear fallout exposure to Americans from

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<sup>96</sup> Teller to Starbird.

<sup>97</sup> U.S. Department of Energy, Nevada Operations Office, Office of Public Affairs and Information, “Executive Summary: Plowshare Program,” 31, <https://www.osti.gov/opennet/reports/plowshar.pdf> (accessed January 30, 2015).

<sup>98</sup> U.S. Department of Energy, Nevada Operations Office, Office of Public Affairs and Information, “Executive Summary: Plowshare Program,” 31, <https://www.osti.gov/opennet/reports/plowshar.pdf> (accessed January 30, 2015), 1.

the sum total of all U.S. nuclear explosions: the Sedan shot.<sup>99</sup> As a means of actual peaceful atomic weapon utilization, Plowshare was a failure hamstrung by half-measures and potentially disingenuous motives. Even with its failures, Plowshare still cost the American taxpayers \$770 million.<sup>100</sup>

Furthermore, Plowshare did nothing to alleviate the public's fear of nuclear weapons and nuclear war. Even after the program ended in 1975, the anti-nuclear movies kept coming. Decades after the Cuban missile crisis, fear of nuclear weapons and nuclear war not only still gripped people, but was actually increasing. In 1976, seven percent of adolescents questioned responded that they worried about nuclear weapons: in 1982, it was 31%.<sup>101</sup> Thirty-five percent believed that nuclear annihilation could likely occur in their lifetime. A 1982 Gallup poll amongst adults showed an even bleaker outlook: "72%... worried about nuclear war and 38% thought that nuclear war could occur."<sup>102</sup> Even the latter number seems low considering that seventy-two percent of those queried would not worry about nuclear war if they did not think it could occur.

Plowshare, and the Sedan shot in particular, failed to truly benefit mankind or convince the American people that nuclear weapons were not, indeed, excessive, lethal, technological dalliances without redeeming social values and capable of delivering Armageddon in small, convenient packages. However, atomic culture did still look to the

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<sup>99</sup> Harold Beck, External Radiation Exposure to the Population of the Continental U.S. from Nevada Weapons Tests and Estimates of Deposition Density of Radionuclides That Could Significantly Contribute to Internal Radiation Exposure via Ingestion, Report to the National Cancer Institute in fulfillment of P.O. #263-MQ-909853, November 1, 1999, E-40.

<sup>100</sup> Stephen I Schwartz, ed., et al., *Nuclear Audit: The Cost and Consequences of U.S. Nuclear Weapons Since 1940*, (Washington, D.C.: Brookings Institute Press, 1998) 79.

<sup>101</sup> James Thompson, *Psychological Aspects of Nuclear War*, (Chichester: The British Psychological Society and John Wiley & Sons Limited, 1985), 11.

<sup>102</sup> Thompson, 11.

potentiality of nuclear weapons to transform themselves into saviors of mankind. Movies such as *Armageddon* and *Deep Impact* looked to nuclear weapons as the salvation of humanity facing extinction as massive, planet-killing asteroids hurtle toward Earth. In the case of the former, nuclear weapons and human sacrifice save the world while in the latter, nuclear weapons for peaceful purposes once again fall short of their stated goal. Perhaps the attitude shift has something to do with the prevalent theme of redemption in western societies or maybe it is a sort of collective cognitive dissonance; the mental block disallows people from realizing that these weapons, these thousands of weapons, which the world's nuclear powers have built truly were designed for one purpose and one purpose only. Or maybe, sadly, it is the painfully short American cultural and historical attention-span: although the nuclear blasts have stopped, the atomic tourism has started up once again at the Nevada Test Site.<sup>103</sup> Now people are paying to see the atomic bomb crater made by a peaceful nuclear explosion that was billed as safe when decades of Civil Defense training told them to get as far away from a detonation as possible. Nothing, fundamentally, has changed at the test site. Nothing has fundamentally changed at its counterpart in the former Soviet Union, either.

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<sup>103</sup> Phoebe Sweet, "Looking Into the Nuclear Abyss: Nevada Test Site Tourists Are Assured It's Perfectly Safe," *Las Vegas Sun*, May 18, 2008, <http://www.lasvegassun.com/news/2008/may/18/looking-nuclear-abyss/> (accessed February 12, 2015).



### Chapter Three: The Chagan Test

Senior drilling supervisor Vladimir Gopchukov had no idea that he was swimming in a lake that just happened to be the most heavily radioactively contaminated place on the most heavily used nuclear test range in the Soviet Union.<sup>104</sup> He did not know that he and his fellows were fishing in water rife with residual radiation and particles of plutonium, cesium, and strontium. When they finished eating their fish, they did not know that the ground upon which they would nap would not only grant them rest, but the equivalent dosage of several chest x-rays.<sup>105</sup> What Vladimir did know was that Lake Chagan was the only place to relax after a long day of work drilling holes for nuclear weapons experiments at the Semipalatinsk Nuclear Test Range, the “Polygon,” in the Kazakh Soviet Socialist Republic. Vladimir was also confident that the water was safe for human usage because that was the entire point of the lake: it was the first artificial body of water in the world created by an atomic weapon as part of the Soviet Union’s Nuclear Explosions for the National Economy (NENE) project. The project was almost a carbon copy of the United States’ Operation Plowshare and Lake Chagan was the Soviet fulfillment of the United States Atomic Energy Commission’s unrealized dreams of

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<sup>104</sup> The source of this information is a documentary film about the Semipalatinsk Nuclear Test Range. Much of the dialogue conducted during the course of the video clips throughout this paper is in Russian with English subtitles. In some places, there are better translations of Russian phrases available that more accurately convey English idioms and in those places, I have used my own translations versus the supplied translations. This is done in the interest of accuracy and readability. In places where native Kazakh is used, I have had to rely on the subtitles but trust in their accuracy due to reasonable translations of Russian elsewhere within the same clip. Channel One Russia, “Semipalatinskii Polygon [2004, Dokumental’nyi fil’m],” <https://www.youtube.com/watch?v=A2PBtdEgDEU> (accessed March 10, 2015).

<sup>105</sup> The actual risk may be much higher or much lower depending on where the person is located on the shore of Lake Chagan and how long he or she stayed there. The actual dosage of a chest x-ray, however, is standard and well-known. American Society of Radiologic Technologists, *Risk Calculator*, X-Ray Risk.Com <http://www.xrayrisk.com/calculator/calculator.php> (accessed March 29, 2015).

creating a lake with their Sedan shot.<sup>106</sup> The intent to use Lake Chagan as a propaganda coup was identical. There were several salient differences, however. The most notable among these differences is that some former Soviet citizens believe that Lake Chagan, along with the rest of the Soviet nuclear weapons program, may have been at least partially utilized as a nefarious project of human experimentation on a massive scale. Concomitant with this testing are two sets of opposing collective memories within the Soviet Union regarding its nuclear weapons program. One side remembers it as an extension of a cold, calculating totalitarian state, while the other views it as the state putting the good of the many before the good of the few based on sound, state sponsored science.

The Soviet Union's record as a steward of environmental welfare is inversely proportional to its record of neglecting the welfare of its citizenry in favor of defending an ideology. It is no secret, at least not in countries outside of modern day Russia, that the Soviet Union has a long record of human rights violations beginning with the violence of the October Revolution and continuing through the Ukrainian Famine, the Stalinist purges, and the suppression of dissidents. Not content with quashing dissent within its own borders, the Soviet Union felt it necessary to crush democratic and even progressive socialist movements in countries such as Poland, Hungary, and Czechoslovakia.

Their environmental record is similarly dubious with the explosion of the nuclear power plant in Chernobyl, Ukraine, April 26, 1986 as but one of many examples of tragic apathy and neglect in the name of furthering the cause of the Soviet Union as not just a

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<sup>106</sup> U.S. Atomic Energy Commission, "Operation Plowshare [Part 2] (c. 1961)," YouTube, <https://www.youtube.com/watch?v=eIsUMK4-csM> (accessed February 11, 2015).

nation, but as an ideological stronghold. That citadel of Marxist-Leninism required a defense that transcended the needs of its own citizenry at the cost of the very natural resources that allowed the country to survive and thrive. This paper, however, seeks neither to prove that the Soviet Union carried out its weapons production and testing program in an irresponsible and reckless manner, nor that it purposely used marginalized Soviet citizens as nuclear guinea pigs in order to study the effects of atomic warfare and long-term exposure to radioactive contamination. These themes are present and recurring throughout this chapter, but their purpose is to place in context how the Soviet Union presented weapons testing and production, how those tests were perceived then, and how they are remembered today.

Collective memory, reinforced by propaganda, has made it easy for the west to demonize the Soviet Union for its sins and alleged sins against its own people. It may be that the transgressions of the past make it all too easy to paint the Soviet Union as a villain worthy of the moniker of “Evil Empire.”<sup>107</sup> It may be easily believable that a country capable of starving, purging, torturing, and executing its own citizenry in the first half of the twentieth century under Lenin and Stalin would be equally capable of using its citizenry as guinea pigs in nuclear experiments in the latter half of the twentieth century and beyond. But, it may also be that western collective memory has made it too easy to vilify the former Soviet Union while ignoring the collective memory of the Soviets themselves. This nebulous collective memory has made for disjointed and contentious

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<sup>107</sup> President Ronald Reagan referred to the Soviet Union as an “evil empire” in speech before the National Association of Evangelicals in Orlando, Florida in 1983. He also used the opportunity to mention that the United States did not use its nuclear arsenal for territorial gains in the 1940s and 1950s when it was in a position to do so. Furthermore, he espoused his desires to cut the United States’ nuclear arsenal by fifty percent. Ronald Reagan, “Evil Empire Speech,” Orlando, Florida, March 8, 1983.

national identities, real or perceived marginalized populations, and feelings of persecution. Therefore, it may be that the question of whether or not the Soviet Union did in fact utilize its own citizens as human guinea pigs to study the effects of nuclear weapons and radioactive contamination is primarily one of popular, local consensus instead of global scientific or political consensus.

This chapter will utilize a variety of sources to support assertions therein, but in addition to scientific papers, news articles, and government documents it will rely heavily on documentary film sources. The reason for this is twofold. Because of a lack of time and resources, it is impossible to interview citizens in the former Soviet Union in sufficient quantities in the affected areas to include a sufficient sampling to support any points in this paper. Secondly, as they convey opinions that are not only personal in nature, but contribute to the greater collective memory of the local, national, and global population as a whole due to their very nature, video expositions of affected populations and documentaries on YouTube and other video media outlets not only demonstrate collective memory, but help to mold it. The majority of the videos and several of the written sources are, by necessity, more recent. This is for two reasons. The first is that until Mikhail Gorbachev's program of glasnost', there really was no freedom of the press in the Soviet Union nor was there much foreign press access to sources within the USSR. The second is that much of the available information regarding the Soviet weapons program has just recently been revealed to those it affected and the remainder of that program remains highly classified.

The Soviet nuclear program began in earnest while both the United States and the Soviet Union were still in the grips of World War II. Aware of the theory that the power

of the atom could be harnessed and even weaponized and similarly well aware that the United States was pursuing atomic weapons with a vengeance via the Manhattan Project, the Union of Soviet Socialist Republics started to develop their own atomic weapons program. The two programs had many similarities in regard to secrecy and technological requirements. In fact, the United States unwittingly contributed to the Soviet weapons development program at the hands of Karl Fuchs, David Greenglass, the Rosenbergs, and others through Soviet espionage efforts as early as 1943.<sup>108</sup> That year Igor Kurchatov, the father of the Soviet atomic bomb, offhandedly dismissed involuntary US contributions by saying that the 286 reports on the Manhattan Project “do not contain very important technical details,” yet demanded more quantity and quality of information in that regard.<sup>109</sup> The resulting reports gave detailed plans to the implosion bomb that was eventually tested at the Trinity Site in August 1945. Unknown to the Americans, the Soviets had also covertly secured the Smyth Report outlining the Manhattan Project earlier in the spring of that same year.<sup>110</sup> Armed with that information and domestic scientific talent, Kurchatov, under the orders of Stalin and the supervision of Lavrentii Beria, developed a plan to build and test the Soviet atom bomb. By 1949, he had achieved his goal with the majority of Soviet citizens ignorant of the involuntary US contributions.<sup>111</sup>

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<sup>108</sup> Gerard DeGroot, *The Bomb: A Life*, (Cambridge: Harvard University Press, 2005) 52-53, 127-128.

<sup>109</sup> David Holloway, *Stalin and the Bomb: The Soviet Union and Atomic Energy 1939-1956*, (Yale University Press: New Haven, 1994), 103-104; Apparently the Smyth report, written and published in 1946, which outlined the physics associated with atomic bombs in broad, vague, unclassified scientific terms did not contribute enough engineering savvy to the Soviet atomic weapons development project to satisfy Kurchatov.

<sup>110</sup> Kate Brown, *Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters*, (Oxford: Oxford University Press, 2013), 83-84.

<sup>111</sup> David Holloway, *Stalin and the Bomb: The Soviet Union and Atomic Energy 1939-1956*, (New Haven: Yale University Press, 1994), 213-216.

The Soviet's first atomic test, First Lightning, set the stage for hundreds of others to follow.<sup>112</sup> As the Cold War progressed, scientists and engineers in the United States and the Soviet Union continued their work on developing new and improved atomic bomb designs. On August 12, 1953, the Soviet Union detonated the world's first hydrogen bomb ushering in the thermo-nuclear age and weapons development gradually shifted from fission bombs to the slightly cleaner and much more powerful fusion bombs.<sup>113</sup> As the rate at which these bombs were developed and built increased, so too did the rate at which they were tested. Not only did both countries need places to test these new and enormously powerful weapons, but they needed places to produce and process the raw materials that went into those bombs. In both countries the test sites and the processing sites would eventually become subjects of international controversy due to radioactive contamination, but much more so in the USSR than in the US due to the more, yet not entirely, open nature of American society and the environmental controls established as a result of that openness.

Much is known today about the Manhattan Project despite the veil of secrecy under which it was conceived and completed. An entire industrial city replete with an almost unlimited, organic power supply from the Tennessee Valley Authority Hydroelectric Project sprung up out of nowhere in almost utter secrecy in the back woods of Tennessee to process the uranium-238 into the highly enriched, weapons-grade uranium-235.<sup>114</sup> General Groves, a taskmaster with an eye for detail, was the head of the

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<sup>112</sup> "Semipalatinski Polygon - Tragediya Kazakhskogo Naroda," *Kazakhi Rossii*, <http://kazakh.orgfree.com/index.php?dn=article&to=art&id=44>, (accessed February 12, 2015).

<sup>113</sup> Oleg Bukharin, et al, Pavel Podvig ed., *Russian Strategic Nuclear Forces*, (Cambridge: The MIT Press, 2001) 443.

<sup>114</sup> To use the term "sprung up" is oversimplification in the interest of hyperbole. In order to truly understand the complexity and magnitude of the undertaking in even a cursory fashion, read: Thomas P.

project and made sure that motivated, dedicated, and skilled workers of both the Army corps of engineers and civilian workers completed the work. A similar facility for processing plutonium sprung up out of the scrub at the confluence of two rivers in Hanford, Washington.<sup>115</sup> One might assume that the uranium and plutonium processing facilities in the former Soviet Union had a similar genesis due to the popular image of the dedicated and ideologically motivated Soviet comrade worker. This preconception of the noble Soviet labor hero perpetrated by the Communist party and sealed into the collective memory of both the west and the Communist Bloc would be somewhat inaccurate.<sup>116</sup>

The site that Beria chose for the Soviet plutonium processing facility was in the Chelyabinsk region of Russia in the southern Ural Mountains.<sup>117</sup> Located on the southern bank of Lake Kyzyltash, which connects to the Techa River, the site which was originally named Chelyabinsk-40, then Chelyabinsk-65, and eventually became the Mayak complex did not even appear on Soviet maps of the USSR until 1989.<sup>118</sup> It was to fulfill all of the plutonium needs for the Soviet atomic weapons project for the foreseeable future. Unlike the Oak Ridge and Hanford sites in the United States, however, Beria forced political and criminal prisoners as well as German prisoners of war from the Gulag System to build the facility. No one knew this, however, because much like in the United States, very few people in the Soviet Union even knew what an atom was let alone had any idea that their motherland was trying to make a bomb out of it. The workers at the Mayak site carried

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Hughes, *American Genesis: A Century of Invention and Technological Enthusiasm, 1870-1970*, (Chicago: University of Chicago Press, 2004), 382-398, 402-416.

<sup>115</sup> Hughes, 399-402.

<sup>116</sup> Brown, 83-85.

<sup>117</sup> Thomas B. Cochran, Robert Standish Norris, and Kristen L. Suokko, "Radioactive Contamination at Chelyabinsk-65, Russia," *Annual Review of Environment & Resources*, Nov1993, 18 no. 1, 507-508.

<sup>118</sup> Cochran et al., 508.

out plutonium processing throughout the Cold War much as the workers did at the Hanford site, but with a few glaring and very important differences. The most striking of these is that, although the Hanford Site was dumping effluent into the swift, high-volume Columbia River, it did not dump nuclear waste directly into the Columbia in nearly the quantities that Mayak did to the slow-moving Techa River.<sup>119</sup>

The Mayak site is notorious for being considered one of the most radioactively contaminated sites on the planet. While this dubiously illustrious list includes the Hanford site in Washington, the Mayak site distinguishes itself by playing host to Lake Karachai, possibly the most polluted lake on the planet where to “stand on the windswept, reedy shore [...] for an hour was to get a fatal dose.”<sup>120</sup> During the processing of plutonium throughout the Cold War, the workers at Mayak dumped highly toxic radioactive waste into the lake for decades. The lake is considered so radioactive that, although it is only half a kilometer long, walking its perimeter twice at a leisurely pace will give a human being a lethal dose of radiation.<sup>121</sup> Worse yet is that the lake is located in the middle of an area replete with lakes and interconnecting waterways. One of these interconnecting waterways is the Techa River. The Techa River, a tributary of the Tobol River, which feeds into the Irtys River, then the Ob River, and eventually dumps into the Arctic Ocean, flows past a series of villages directly downstream from the facility. Fortunately, most of these villages were evacuated in 1957 after an accident at the Mayak

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<sup>119</sup> Brown, 53, 190.

<sup>120</sup> Brown, 189.

<sup>121</sup> Cochran, et al., 518.



facility released two million curies of radioactivity into the atmosphere.<sup>122</sup> These villages remain abandoned, except one.

The village of Muslyumovo is located on the Techa River sixty-eight kilometers downstream from the Mayak facility. Gosman Kabirov, a resident of that village, explains to a journalist in an Australian-produced expose of the village “that’s the Mayak complex. [...] Now it’s the most contaminated place on the whole planet. There are two billion, four hundred million curies buried there. By comparison, at Chernobyl there were fifty million curies. That’s two hundred time more than Chernobyl, the concentration of radioactivity.”<sup>123</sup> He is not wrong. From 1948 until 1952 and possibly later, the workers not only dumped radioactive waste from the Mayak complex into the Techa, but the river also became a repository for waste from the accidental leak in 1957.<sup>124</sup> The river was not only a source of water for bathing, agriculture, and drinking for the local villages, but also for entertainment. “When we were kids, we used to play down there and go swimming,” Kabirov recalled. “All the people who lived and worked down there are already all dead.” When the reporter asks Kabirov if anyone warned him, he explains that they were told to stay away, but “they didn’t tell [them] anything about radiation until 1991.” Gosman’s opinion of the Soviet Atomic weapons program is predictably jaded. He continued in editorial fashion stating that, “they haven’t killed a single enemy with their atomic bomb, but of our local population here in Muslyumovo, a huge number have

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<sup>122</sup> Cochran, et al., 520-521.

<sup>123</sup> Kim Traill, “Russia’s Deadly Secret,” *Dateline*, Special Broadcasting Service-Australia 2001 [www.sbs.com.au/dateline](http://www.sbs.com.au/dateline) via [https://www.youtube.com/watch?v=MbR00\\_W4gEo](https://www.youtube.com/watch?v=MbR00_W4gEo) (accessed March 20, 2015).

<sup>124</sup> Cochran, et al., 520-521.

died and are continuing to die.”<sup>125</sup> His friends throughout the documentary repeat his sentiments and talk of their substantial losses and health problems.

The situation in Muslyumovo is tragic. It is not unheard of in this village of roughly 3,500 inhabitants to have twenty-two people die in a month.<sup>126</sup> To put that in perspective, it would be roughly the equivalent of a town of 35,000 people losing seven people every day of the month or about twelve times the US mortality rate.<sup>127</sup> Gosman is trying to prove to the reporter that the area is still highly contaminated by showing her radiation readings while explaining that cows eat the grass near the river and then the local children are ingesting strontium, cesium, and plutonium by drinking the cows’ milk. He wants to show the reporter how many microrentgens the ground is emitting: the device he is holding registers 9.98 per hour.<sup>128</sup> It sounds and looks frightening. The equivalent dosage is .998  $\mu\text{Sv}$  or the same as watching an older model, cathode ray television for a year or eating ten bananas.<sup>129</sup> Gosman is either very wrong about the units of measure that his radiation detector is registering, or the levels of radioactivity in the

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<sup>125</sup> Traill, “Russia’s Deadly Secret.”

<sup>126</sup> Tara Sonenshine and Jay LaMonica, “Muslyumovo: The Most Polluted Place on Earth,” *The Baltimore Sun*, February 19, 1992.

<sup>127</sup> Centers for Disease Control and Prevention, *Deaths and Mortality*, <http://www.cdc.gov/nchs/fastats/deaths.htm> (accessed March 20, 2015).

<sup>128</sup> There are numerous measures of radiation and dosage used in the radiation industry. The standards have changed over the years and, although the Sievert (including milliseivert or 1/1000 of a Sievert expressed as mSv and microsieverts or 1/1000 of a milliseivert expressed as  $\mu\text{Sv}$ ) is the generally agreed upon unit of measure for absorbed dosage amongst physicists and medical professionals, there are still other units of measure in use including the rem, the roentgen, the gray, the Curie, and the rad. There are standardized conversion formulae for all of these units, but in the interest of keeping this a history paper versus a science paper, the math and physics conversions are done for the reader. For ease of conversion for those curious readers, there are several on-line conversion calculators out there such as here <http://www.translatorscafe.com/cafe/EN/units-converter/radiation/28-24/microrentgen%2Fhour-microsievert%2Fhour/> and here <http://www.easysurf.cc/cnver24.htm#rmtosv2>.

<sup>129</sup> *Dateline* SBS returned to Muslyumovo later in 2008 and produced another expose with Gosman Kabirov and a former Red Army colonel. This time, Gosman is very clear about taking readings of 243 microrentgens per hour, which is equivalent to 2.43 microsieverts per hour, which does demonstrate an elevated health risk by a degree of ten. Nick Lazaredes, “Russia- Exporting Trouble?” *Dateline, SBS*. February 18, 2008. <http://www.sbs.com.au/ondemand/video/11726915639/Russia-Exporting-Trouble>

area he is testing are much lower than expected. This, however, is irrelevant: the narrator reports that the levels of radiation are eighty times higher than they should be, so that is what the public hears. This is what the public hears because this is what the Tatar inhabitants of Muslyumovo are saying and they are saying this based on the memory of a Soviet Union dominated by Russian hegemony that has clearly ignored their health and welfare in the past.

But is the collective memory accurate? Is the rash of death and disease that Gosman and his friends speak of real or is it similarly an imagined, collective sense of reality based on rumor and feelings of marginalization? The facts do seem to support the collective memory of Muslyumovo. The Soviet First Main Department of Beria's Special Committee which produced fissile material at the plant did dump nuclear waste directly into the Techa River, they did experience a catastrophic failure in one of their storage tanks that released unprecedented amounts of radioactive material into the atmosphere and surrounding waterways, and the damage and danger was so great that two hundred "towns and villages in the area were relocated."<sup>130</sup> But not Muslyumovo. As drought ravaged the area ten years after the explosion, it turned the radioactive slurry in the nuclear lakes near Mayak into radioactive powder that the wind then picked up and carried across the landscape turning the region into what physicist Thomas Cochran called "the most polluted spot on the planet."<sup>131</sup> He is not alone in that assertion. Unfortunately, for the inhabitants of Muslyumovo, they did not know of the extent of the danger until the early 1990s. Most did not even know there had been an accident until

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<sup>130</sup> Tara Sonenshine and Jay LaMonica, "Muslyumovo: The Most Polluted Place on Earth," *The Baltimore Sun*, February 19, 1992. [http://articles.baltimoresun.com/1992-02-19/news/1992050158\\_1\\_nuclear-waste-techa-radioactive](http://articles.baltimoresun.com/1992-02-19/news/1992050158_1_nuclear-waste-techa-radioactive) (accessed March 15, 2015).

<sup>131</sup> Thomas Cochran, *Natural Resources Defense Council*, via Sonenshine and LaMonica.

thirty-five years after it happened. Theirs may not have been so much a case of collective memory, but collective amnesia forced upon them by the vestiges of the First Main Department of Beria's Special Committee, RosAtom, running the Mayak facility.<sup>132</sup> Gosman and many others in the village believe that this was no accident.

The inhabitants of Muslyumovo receive a stipend called "ecological money" of thirty-three rubles, or roughly two US dollars, per month and free medical care as compensation for living in the contaminated village.<sup>133</sup> Some inhabitants are just concerned about their families and homes and want to protect them from further detrimental consequences of radioactive waste. Many others would simply like to leave, but they cannot. The stipend and free medical care is conditional upon living within the village's limits. This, however, does not matter as the villagers simply do not have the means to move away. Many of the region's inhabitants, especially in Muslyumovo, feel as if they are, or at least were, being used as human guinea pigs to study the effects of radioactivity on the human body.<sup>134</sup> They may not be entirely wrong as there have been, and continue to be conducted, research projects to track the effects of long-term radiation exposure among villagers as well as Mayak workers.<sup>135</sup>

Robbed of their health, robbed of their children, and perhaps robbed of their lives, Gosman and his fellow villagers refuse to be robbed of their agency. He created an environmental group called Techa in honor of the ravaged river to protest the situation, to

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<sup>132</sup> Brown, 84.

<sup>133</sup> At the time the documentary was filmed, thirty-three rubles was equivalent to two dollars. Traill, "Russia's Deadly Secret."

<sup>134</sup> Traill, "Russia's Deadly Secret."

<sup>135</sup> Traill, "Russia's Deadly Secret." N. S. Shilnikova et al., "Cancer Mortality Risk among Workers at the Mayak Nuclear Complex," *Radiation Research*, 159, no 6 (June, 2003) 787-798.

demand answers about the Mayak complex, and to demand just compensation for what he and others believe is the suffering caused at the hands of the Soviet atomic weapons program. Since the protests have started, the Russian police have been keeping tabs on Techa and actively record their activities. They often outnumber the protesters with the ratio being as high as ten to one. Gosman won a Soros Foundation award for his work, but the Federal Security Bureau has labeled him a traitor due to his environmental work.<sup>136</sup> The unfortunate situation wherein the inhabitants of Muslyumovo feel like marginalized guinea pigs finds an analogous situation on a connecting waterway: the Techa River flows into the Irtysh River downstream from where the Irtysh passes the Semipalatinsk Nuclear Test Range.

In the interest of secrecy, the site of the first US atomic bomb test was the Trinity Test Site at the Alamogordo Bombing and Gunnery Range, New Mexico. Located in the aptly named Jornada del Muerto (Journey of the Dead Man) Desert 210 miles south of Los Alamos, the site was more or less ideal to keep the test under wraps, although hiding an atomic bomb detonation borders on the impossible.<sup>137</sup> The Soviets sought a similarly remote site to test their atomic weapons and found their Alamogordo in northeastern Kazakhstan. The site, eventually known throughout Russia and the rest of the world as the Polygon, was ideal due to its position directly south of the Irtysh River and its

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<sup>136</sup> The Federal Security Bureau, with the support of Vladimir Putin, considers foreign environmental groups to be agents of espionage, although the Russian Federation has shut down its only ecological watchdog agency. Kim Traill, "Russia's Deadly Secret," *Dateline*, Special Broadcasting Service-Australia 2001 [www.sbs.com.au/dateline](http://www.sbs.com.au/dateline) via [https://www.youtube.com/watch?v=MbR00\\_W4gEo](https://www.youtube.com/watch?v=MbR00_W4gEo) (accessed March 20, 2015).

<sup>137</sup> United States Department of Energy, "Trinity Site – World's First Nuclear Explosion," Office of Management-Energy.gov, <http://energy.gov/management/trinity-site-worlds-first-nuclear-explosion>, (accessed March 31, 2015).

relatively remote location a hundred kilometers west of the city of Semipalatinsk.<sup>138</sup> The Soviet Union built a secret city on the banks of the Irtysh with the designation “Semipalatinsk 21.”<sup>139</sup> The city is now called Kurchatov in honor of the father of the Soviet atomic bomb and is little more than a shell of its former self. In its heyday, Kurchatov hosted the scientists, engineers, soldiers, spouses and families thereof and kept them at a standard of living clearly in excess of that enjoyed by Muscovites and far in excess of that tolerated in the rest of the Soviet Union. Away from prevailing winds, the secret city that sprung up out of nowhere in the Kazakh desert was supposed to be the only inhabited settlement on the test range. The site of the Polygon was chosen for that reason.<sup>140</sup> At the time it was built it was not, however, bereft of human habitation.

In a different documentary, Serik, a local farmer from the village of Sarzhal on the edge of the Polygon, walks with a Geiger counter in hand. As he walks along, he calls out readings to the journalist following him. “Here it is 38” and then a few steps later “oh, here it is 41. Let’s go to the top of the crater.”<sup>141</sup> Within a few seconds, he announces that the reading has spiked to 155 and then shows a reading from the Radex meter of 254 microrems per hour at the apex. “They say that the normal is fifteen,” he says in a tone of resignation. For a sheep farmer, his knowledge of physics is eerily accurate in this instance. The background dosage that an average human being living in an area where there is no elevated radiation conditions such as proximity to a nuclear power plant or a settlement at high altitudes like Denver is around 10  $\mu$ Sv per day.

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<sup>138</sup> Togzhan Kassenova, "The Lasting Toll of Semipalatinsk's Nuclear Testing," *Bulletin of the Atomic Scientists*, (September 2009).

<sup>139</sup> Kassenova.

<sup>140</sup> Channel One Russia, “The Semipalatinsk Test Range [2004, documentary film],” fix citation.

<sup>141</sup> Anthony Butts, dr., “After the Apocalypse,” documentary, 2010 (released 13 May, 2011), [https://www.youtube.com/watch?v=c11o8o\\_imU0](https://www.youtube.com/watch?v=c11o8o_imU0) (accessed March 2, 2015)

Serik's reading of 254 microrems per hour is equivalent to 2.54  $\mu\text{Sv}$  per hour or about 61  $\mu\text{Sv}$  per day. While not alarmingly high, it is six times normal or roughly the equivalent of getting the US government's maximum yearly limit to a member of the public in sixteen and a half days or roughly half the yearly permissible dose limit for radiation workers in the United States in one year.<sup>142</sup> To add to the menacing dialogue and background music throughout the documentary, the sounds of a Geiger counter clicking are commonly heard as a leitmotif whenever they are on the Polygon regardless of whether or not one is being used.<sup>143</sup>

During the course of the documentary entitled "After the Apocalypse," Serik explains that the locals feel like lab rats. He explains that the people on the edge of the Polygon suffer greater than normal levels of heart and lung disease as well as cancer. Most of the time that he is explaining the plight of his village he has a cigarette dangling out of his mouth and while he is out riding and walking the Polygon as de facto tour guide to the narrator, he repeatedly offers him shots of vodka. When queried why the narrator should drink more, Serik simply answers "for your health" and toasts him. "Nothing good has come of this, only bad" he slurs with the bottle in one hand and another cigarette in the other. Back at Serik's house, he sits down to a dinner of roasted sheep head, which he shares with his interviewer.<sup>144</sup>

As a guest of honor, the host offers him the sheep's eye so that he may "see farther" and will never "need glasses" while the children eat the ears so that they will

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<sup>142</sup> United States Department of Energy, Office of Health, Safety, and Security, *Occupational Radiation Exposure*, (Oak Ridge, TN: Oak Ridge Associated Universities, 2011) 2-2.

<sup>143</sup> Butts, dr., "After the Apocalypse."

<sup>144</sup> Butts, dr., "After the Apocalypse."

listen. Serik's world is a mix of science, pseudo-science, and superstition created out of a collective memory based upon both centuries of nomadic tradition and a common distrust of the Soviet Union, which brought the terrible weapons to the once peaceful steppe. "It was just to show America, after they bombed Hiroshima and Nagasaki, that the Soviet Union could do this as well," Serik explains. It is noteworthy that he does not say that it was to show America that "we" could do it as well. "They showed them that they could also have this kind of weapon." "They," not "we."<sup>145</sup>

In America, people flocked to watch atomic bomb tests in the 1950s and embraced atomic culture.<sup>146</sup> In Kazakhstan, the tests came to them. In the same documentary, Biken, a female resident of Sarzhal, describes playing near the test site at age six, seeing mushroom clouds reminiscent of big, red balloons, and then suddenly feeling inexplicably ill. Her eyes are wide set, perhaps two inches apart, and her nose is similarly disfigured. She is clearly the victim of genetic mutation. Her adult daughter, Bibigul, shares a similar facial disfiguration. Bibigul realized when she was in fifth grade that there was something very wrong with her and others around the Polygon who were missing arms and legs. "It was definitely the nuclear effects. Nothing else," Biken states with authority. Biken, however, was born with those facial features before any testing took place at the Polygon.<sup>147</sup>

Claims such as hers hurt legitimate claims by medical professionals and scientists that the Polygon has negatively impacted the health of those living on and around the test

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<sup>145</sup> Butts, dr., "After the Apocalypse."

<sup>146</sup> James P. Delgado, *Nuclear Dawn: The Atomic Bomb from the Manhattan Project to the Cold War*, (Oxford: Osprey Publishing, 2009), 127.

<sup>147</sup> Butts, dr., "After the Apocalypse."



range and may still continue to do so today. It may be, however, that since the culture of the Polygon is such that those people that live there remember the nuclear tests, there may be such an influence of collective memory that they actually believe that all genetic deficiencies are caused by the atomic testing. Some people, like Dr. Sergey Lukashenko from the Institute of Radiation Safety at Kurchatov, categorically deny that the residual radiation from the 458 nuclear tests at the test range are the cause of any long-term health concerns or birth defects. He thinks that this is just what the people want to believe. Dr. Toleukhan Nurmagambetov, the head of a maternity clinic in the city of Semipalatinsk, wholeheartedly disagrees.<sup>148</sup>

Dr. Lukashenko takes the reporter on a tour of the Semipalatinsk Polygon Museum at Kurchatov. There, a docent leads him about showing him such exhibits as pictures of nuclear tests, maps of the Polygon, and organs from animals used as experimental subjects during test detonations. The damage, such as second-degree burns on sheepskin and a dog's heart that exploded as the blast and radiation from an atomic bomb crushed and irradiated their bodies, is clear. Eventually, she leads the viewer to a chunk of granite from the ground at one of the test craters. At a distance from the rock, Dr. Lukashenko demonstrates with a radiation meter that the background radiation is normal. As he brings it closer to the rock, within about a foot, it spikes to levels half that of those that Serik recorded at the crater. He asserts, "this is the question of whether the Polygon affects you or not. [The radiation drops off too quickly.] If I sit down on this stone for a while, then it is bad. That would be a dangerous thing for me to do." When the reporter advises Dr. Lukashenko that he took readings of 300  $\mu\text{Sv}$ , he responds that it is

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<sup>148</sup> Butts, dr., "After the Apocalypse."

“very little... a little high, obviously, but not that much” despite being twice what he measured from the ground zero stone. He swears that the radiation cannot be the cause of all of the “horrors that they show on TV.” It may be the case that he thinks what is dangerous to him, a Ukrainian who moved to the Polygon, may not be dangerous to the indigenous Kazakhs. “There is no way it can account for [the deformities].”<sup>149</sup>

Dr. Lukashenko works on a test range where it may be in his best interest to downplay the negative effects of radiation, but it may also be the case that he earnestly believes that it does no harm. Although it does not account for his duplicitous answer in the museum, his opinion may be molded by a system that stressed the safety of radiation, indeed made propaganda movies touting that safety, and a collective memory that supports his beliefs. Dr. Lukashenko, however, is at odds with some of the best minds in the history of nuclear physics and medicine such as Isaac Asimov. There is still a lot of controversy and debate regarding the effects of radiation on living beings, especially in regards to genetic mutations passed along to the next generations and even follow-on generations. In a 1966 U.S. Atomic Energy Commission pamphlet, renowned physicist and author Isaac Asimov along with Theodosius Dobzhansky explained the nature of ionizing radiation:

Ionizing radiation is capable of imparting so much energy to molecules as to cause them to vibrate themselves apart, producing not only ions but also high-energy uncharged molecular fragments called free radicals. The direct effect of ionizing radiation on chromosomes can be serious. Enough chemical bonds may be disrupted so that a chromosome struck by a high-energy wave or particle may break into fragments. Even if the

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<sup>149</sup> Butts, dr., “After the Apocalypse.”

chromosome manages to remain intact, an individual gene along its length may be badly damaged and a mutation may be produced.<sup>150</sup>

It seems that Dr. Lukashenko's opinions on radiation-based mutation are less in line with Isaac Asimov's theories than Dr. Nurmagambetov's are.

Dr. Nurmagambetov shows a collection of unviable fetuses in glass jars in the museum of anatomy. They are all severely deformed with abnormalities ranging from conjoined twins, to two-headed babies, to a baby whose head is twice the size of its torso, to a cyclops fetus with the eye immediately superior to the bridge of the nose. He calls them "monsters." It is a hellish, morbid cabinet of medical curiosities. "Such birth defects are found all over the world at a rate of up to about 1.5-2%. Here in the Semipalatinsk region, due to the Polygon, and the research of atomic and hydrogen bomb weapons there the possibility of such cases arising is much higher. Literally it is twice as frequent" reports Dr. Nurmagambetov somberly.<sup>151</sup> At a local orphanage, he takes the viewer on a tour of the children that survived. Several are clearly afflicted with Down's syndrome, a malady linked to genetic mutation. One, perhaps a year or so old, is hydrocephalic and merely stares while another baby perhaps half its age lolls about in its crib without arms. The nurse says birth defects are common and becoming more frequent as time goes by but this is the first time she has seen one born armless.<sup>152</sup> Dr. Nurmagambetov is not wrong in his assessment that birth defects in the area are elevated. Other scientists agree that,

In terms of actual health effects, [...] scientists noted that the rate of cancer in those living in eastern Kazakhstan, the area most exposed to

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<sup>150</sup> Isaac Asimov and Theodosius Dobzhansky, *The Genetic Effects of Radiation*, United States Atomic Energy Commission, Division of Technical Information, 1966, 26-27.

<sup>151</sup> Butts, dr., "After the Apocalypse."

<sup>152</sup> Butts, dr., "After the Apocalypse."

radiation, remains 25-30 percent higher than elsewhere in the country; they also reported a higher chance of mental deficiencies in children born to parents who were exposed to radioactive fallout from testing.<sup>153</sup>

At the Semipalatinsk Institute of Radiation Medicine Dr. Boris Gusev has an even bleaker take on the situation facing those who lived on or lived near the Polygon. As a neuropathologist working under conditions of top secrecy for “Dispensary No. 4,” a secret institution whose purpose and methodology were dictated by the Soviet Ministry of Health and who reported directly to Moscow, Dr. Gusev had firsthand knowledge of the effects of radiation on human beings. In fact, he implies that is why the population was never moved in the first place. As he stands among stacks and stacks of medical records explaining how his group collected and analyzed data from the population surrounding the Polygon and then assigned them to risk groups for further study, he admits that they knew exactly what types of radiation there were, where they were, and how much of a dose the populace was getting.<sup>154</sup> He admits,

“We knew everything. But the most important thing was that the population, willingly or unwillingly, that were living in the areas surrounding the Polygon, were pulled into this game between the United States and the Soviet Union. Of course the Soviet Union played the worst role because it allowed its own citizens to live through the most real atomic war. [If the Soviets were going to survive a nuclear war] they had to know what would happen to people and therefore no one was evacuated. Instead they were observed to see how many would die, how many would become ill, and so on.”<sup>155</sup>

Moscow, according to Dr. Gusev, not only allowed the populace to be irradiated; they planned it. Why would they not? As Russians, they had nothing to lose and everything to

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<sup>153</sup> Togzhan Kassenova, “The Lasting Toll of Semipalatinsk’s Nuclear Testing,” *Bulletin of the Atomic Scientists*,

<sup>154</sup> He is not exaggerating. The Russians had very detailed maps of contamination as is evidenced by maps of not only fallout zones, but actual tracks of ground contamination. Valerie I. Kiselev and Eugene V. Zaitsev, *Nuclear Tests: Long-Term Consequences in the Semipalatinsk/Altai Region*, Charles S. Shapiro, Ed., (Barnaul, Russia: Institute of Regional Medical and Ecological Problems, 1998) 95.

<sup>155</sup> Butts, dr., “After the Apocalypse.”

gain by allowing a few thousand ethnic Kazakhs to serve the Soviet Union as test subjects. Serik seems to think so.

When asked if he did not feel even slightly guilty for his complicity in these experiments, Dr. Gusev laughed in resignation and explained just how far he and his interviewer were from each other ethically, morally, and intellectually regarding that time period. He then offered a history lesson as accurate as it was intangible and incomprehensible to the interviewer. “There is no answer to that question,” he said. “I cannot explain it. And you will simply never understand what the former Soviet Union was. You will never get it in your entire life.”<sup>156</sup> There is a collective understanding of the former Soviet Union by its citizens that does not easily, or sometimes ever, transcend cultural and political boundaries. In fact, there are many collective memories of the Soviet Union depending upon which group of former Soviet citizens, or their progeny, describing that memory.

Americans want to believe that the Soviet Union was an evil empire because of the otherness of their system. It was easy to do because the Soviet Union occupied a unique position in the world: neither fully European nor fully Asian, neither fully modern nor fully backward, neither fully civilized nor fully savage, and neither fully belligerent nor fully cooperative. This was the Cold War to Americans. To the Soviets, the Cold War was what they were told it was. The state ran the media and the media reported, or did not report, exactly what the state required. They did their part, just like any good Soviet citizen would.

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<sup>156</sup> Butts, dr., “After the Apocalypse.”

The Soviets used propaganda about the peaceful uses of nuclear weapons as well. Taking a page from the US playbook, they created their Nuclear Explosions for the National Economy (NENE) project and exceeded American experimentation by putting their program into actual practice. Where the United States created a hole wherein a lake could be made, the Soviets actually created a lake. The Chagan engineering project was practically identical to the United States' Sedan shot, with the exception that the Soviets actually filled theirs with water. Not to be outdone by their capitalist opponents, the Soviets also made a film showing the project's process and extolling the virtues of the peaceful atom. The film, meant for public consumption, showed how the bomb was brought in, how it was emplaced, and as the narrator excitedly counted down to the grand finale, how the detonation threw millions of cubic meters of earth into the air creating a crater comparable in size to Sedan, although not mentioning that American achievement. It showed how excavation efforts continued when the radioactivity dropped to acceptable levels fifty days later. After the lake was flooded with runoff from the spring floods, it showed the water being tested and declared it entirely safe for human consumption. It even showed the head of the project jumping into the lake and enjoying a swim.<sup>157</sup>

This is in stark contrast to the Polygon training film meant for military consumption which showed animals such as scores of sheep and dogs, some wearing military jackets, being secured in the open, in bunkers, and in tanks within the blast radius to serve as test subjects. The blast incinerated all of the animals in the open and killed all of those in the tanks within 250 meters of ground zero. As the film moves

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<sup>157</sup> "Sozdaniye 'Atomnogo ozera'," <https://www.youtube.com/watch?t=11&v=ZAoSUIASET0> (accessed March 15, 2015).

farther away from the detonation point, the animals' injuries become less evident, but most are clearly injured and irradiated beyond salvation.<sup>158</sup> The animals at the end of the military film are not enjoying themselves nearly as much as the swimmer at the end of the civilian-minded film is, but both are part of a greater game. The Soviets made the former film to help mold the collective memory of the Soviet people. They never intended the latter film for public viewing.

The Soviet propaganda film about Lake Chagan claimed that the water was perfectly safe for human and animal consumption. Even today, there are some, like Yuri Strilchuk of the Institute of Radiation Safety and Ecology, who believe that the water is within tolerable levels and have claimed to swim in it. Others, like Sergey Subbotin, also an employee of the Institute of Radiation Safety and Ecology, support the party line of Chagan being perfectly safe but their words cast doubt on the safety of the water and the fish that live in it. Although he claims that the radionuclide levels of the lake, “on the whole,” were not in excess of safe levels and ergo the fish were approved for sale in Kurchatov, he does note that he “did [see] several unusual fish. One of them had only one eye. Others had a tail looking like an airplane fin.”<sup>159</sup> The claims of safe water when confronted with the evidence of mutated fish seems almost as farcical as an episode of the Simpsons.<sup>160</sup> In fact, if the Soviet Union had the shared memories of that prime time cartoon, they may have eschewed any mutated fish as food. But this is neither fiction nor humor. Chemist Natalya Bryantseva disagrees with the Institute employees' assessment:

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<sup>158</sup> “For military usage,” “Yadernyi Poligon,” <https://www.youtube.com/watch?v=oc09rFYgQBk> (accessed March 28, 2015).

<sup>159</sup> RT Novosti, “The ‘Atomic Lake’,” Russian Television, 2010, <https://www.youtube.com/watch?v=YSA8ecLEEjo> (accessed March 25, 2015).

<sup>160</sup> “Two Cars in Every Garage and Three Eyes on Every Fish,” *The Simpsons*, Writ. Matt Groening, Dir. Wesley Archer, Perf. Dan Castellaneta, Julie Kavner, et al., Fox, November 1, 1990.

“Cesium is what we find most of all. We also find strontium and sometimes plutonium. They’re not in heavy concentrations, but it is better to keep away from them.”<sup>161</sup>

The Polygon has a history of harsh conditions and an almost institutional ignorance as to the dangers of radiation. Those who worked directly on the test range have far different memories of their time there than those who only ventured out there occasionally or not at all. The construction battalions seemed to be the hardest hit. “Losing toes or fingers to frostbite was common during the winter,” announces the narrator of “Polygon,” a 2004 documentary on the construction of the test range, as if it should be expected. Pavel Kutilkin, head of a drilling section at the test range, recalls that the first spring during its construction was rife with privations. There was neither swimming nor much in the way of extra water as drought compounded their already brutal work regimen. Food was Spartan and the soldiers approached the conditions with typical soldierly humor and resolve. As one Azerbaijani said, “if you don’t like the cottage cheese and lamb that you had for breakfast, don’t worry: you’ll see it again at lunch.”<sup>162</sup> Oleg Tarasov, who worked on the test range in the 1970s as a young soldier collecting radiation readings recalls, “we were proud and we understood nothing.”<sup>163</sup> Although appearing outwardly healthy and svelte, Tarasov suffers from diabetes and tachycardia. But he considers himself lucky. Such is the attitude of a Soviet soldier.

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<sup>161</sup> RT Novosti, “The ‘Atomic Lake.’” November 24, 2010. Exposure to radionuclides such as Strontium-90 may affect bone marrow in an exposed individual and create an elevated risk of leukemia. Centers for Disease Control and Prevention, “Radioactive Fallout from Global Weapons Testing,” [http://www.cdc.gov/nceh/radiation/fallout/RF-GWT\\_home.htm](http://www.cdc.gov/nceh/radiation/fallout/RF-GWT_home.htm) (accessed February 10, 2015).

<sup>162</sup> Channel One Russia, “Polygon.”

<sup>163</sup> RIA Novosti, “Uchast’nik Ispitanii v Semipalatinske: My Gordilis’ i Nichego ne Ponimali,” RIA Novosti: Novosibirsk, (August 8, 2013), <http://ria.ru/nsk/20130829/959360075.html> (accessed March 29, 2015).



The west's collective memory of the Soviet Union as an evil empire has not changed much in the twenty-four years since the Cold War ended. The truly ironic aspect of the Cold War is that the west had a lot more ideological partisans than it thought it had in some of the most unlikely of places: the areas around the uranium and plutonium processing facilities at Mayak in Chelyabinsk and the area surrounding the nuclear test range at Semipalatinsk. In America, analogous facilities were built and staffed by people fueled by patriotic fervor and a drive to bring World War II to a speedy conclusion. Although expediency was a key factor in the construction of these facilities and the work therein was performed at a breakneck pace, the United States paid at least passing attention to safety measures in order to avoid the most egregious releases of radioactivity. In the Soviet Union, the facilities were built by what amounted to slave labor and staffed by workers of a Marxist-Leninist state that never really awarded drive and ingenuity yet never failed to punish failure. They were not racing to build a bomb to end a war; they were racing to build a bomb in order to start one: the Cold War.

Moscow's disregard for its own citizenry in the minds of its own citizenry is clear not only in its tacit approval of lax safety standards, but in its active attempts to place the security of state secrets above the welfare of human beings living in the USSR. The Soviet Union's former citizens feel like they have been utilized as guinea pigs by design or by misfortune in experiments to ascertain the effects of radioactivity on human beings. Common, blue-collar folk such as farmers, shepherds, and laborers as well as white-collar professionals such as physicians and physicists believe that the Soviet Union was complicit in purposely endangering them for the betterment of the Soviet nuclear weapons program. Even if their ire is a result of a collective memory that may not be

entirely accurate one hundred percent of the time, they hold the USSR, not the United States, responsible for the very real casualties of the Cold War.

It cannot be stressed enough how important the Mayak facility and the Semipalatinsk Nuclear Test Range were to the Soviet Union's nuclear weapons program. Mayak, whether most realize it or not, is tangentially if not directly burned into America's collective memory as a result of its critical importance: Gary Powers' flight path took him directly over Mayak immediately prior to Soviet air defenses shooting down his U-2 spy plane in 1960.<sup>164</sup> Forty-two years after operations began at Mayak, the facility is still active today. It is Russia's only large-scale processing facility for plutonium and nuclear waste and is set to take on more.

There are clearly two sets of diametrically opposed collective memories within the Soviet Union regarding its nuclear weapons program. One remembers it as an extension of a brutal, uncaring totalitarian state. The other views it as a necessary evil, or necessary not-so-evil, without which the Cold War might have turned hot. As one official noted, "what does it matter if two or three people died if we saved the world from war?"<sup>165</sup> It matters to Vladimir Gopchukov. His time on the Polygon drilling test holes may not have saved the world from war, but it certainly contributed to the collective memory of Soviet might, the collective pride that Soviet citizens living far away from the test site felt at being a nuclear super power, and the collective fear wrought by a legacy of radiation and uncertainty felt by those living on and near the sites and plutonium

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<sup>164</sup> USSR International Affairs, "Text of Indictment of Spy Pilot Powers," August 10, 1960, Central Intelligence Agency Library, FOIA Advanced Search, [http://www.foia.cia.gov/sites/default/files/document\\_conversions/89801/DOC\\_0000022361.pdf](http://www.foia.cia.gov/sites/default/files/document_conversions/89801/DOC_0000022361.pdf) (accessed April 1, 2015).

<sup>165</sup> Traill, "Russia's Deadly Secret."

processing facilities. It matters to the collective memory of those whose friends and loved ones live on only in their memories.

#### Chapter Four: “There is Still Time, Brother.”

It would be difficult to gauge popular response to nuclear weapons and Cold War pro-nuclear propaganda using survey data in a paper of this scope. Gathering, collating, and analyzing the reams of data from such surveys would be one of the best methods for determining the impact of Cold War propaganda in both the United States and the Soviet Union, however it would be a herculean task more appropriate for a doctoral dissertation than a masters thesis. For this reason, popular opinion related to governmental efforts at public information will be gauged not by how that information was accepted by the general public, but how it was rejected in popular culture through motion pictures. Unfortunately, this approach is only feasible when examining western film.

The problem is that MosFilm, and the other Soviet cinema production units, simply did not make a lot of movies with nuclear themes. In his 1991 compendium of nuclear film, *Nuclear Movies*, Mick Broderick lists 500 feature-length movies from around the world pertaining to everything from nuclear holocaust to aliens. Of these 500, only four were made in the Soviet Union, only two dealt with actual nuclear war, and of those, only one really vilifies the capitalist west. Instead, the Soviet Union relied on propaganda posters. Perhaps it was because film narratives were more complex and therefore demanded more thought, or because posters simply cost less, can reach a wider audience, and convey a more simplistic, monolithic idea. Regardless of the reasoning behind the decision to give anti-nuclear posters primacy over film, the fact remains that a

dearth of Soviet nuclear-themed cinema simply does not exist in sufficient quantity to qualify.<sup>166</sup>

Since the scope of this paper covers the thirty years of the Cold War related to implementing nuclear weapons for other than military applications and the concomitant propaganda that supported such actions, the vast majority of the popular culture referenced will be from that time frame. This, however, does not mean that all popular references will be from that era as part of the reason that Plowshare even existed was negative popular opinion regarding atomic weapons in the years immediately preceding Plowshare coupled with reactionary backlash in the form of art and literature. Also, the impact of nuclear weapons on the human psyche are not quickly abandoned nor forgotten, therefore expressions of that deep-seeded fear are often present years later. For this reason, there shall be references to reactionary popular culture that occurred prior to 1959 in order to establish the American and Soviet zeitgeist and after 1989 in order to demonstrate the lasting effects of nuclear weapons on memory. There shall also be mention of how those reactionary expressions themselves became part of the culture and affected how people currently remember nuclear weapons during the Cold War and how their influence continues today. Although there is a vast collection of anti-nuclear popular

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<sup>166</sup> There is a fairly robust body of historiography on Cold War film, but there is not nearly enough that examines Soviet nuclear film. For a brief listing of nuclear movies, see Mick Broderick, *Nuclear Movies: A Critical Analysis and Filmography of International Feature Length Films Dealing with Experimentation, Aliens, Terrorism, Holocaust and Other Disaster Scenarios, 1914-1989*, (London: McFarland & Company, Inc., 1991) and Jerome Shapiro, *Atomic Bomb Cinema: The Apocalyptic Imagination on Film*, (New York: Routledge, 2002); for a more brief examination of film in the Cold War amidst other cultural influences, see Paul Boyer, *Fallout: A Historian Reflects on America's Half-Century Encounter with Nuclear Weapons*, (Columbus: Ohio State University Press, 1998), and Scott C. Zeman and Michael A. Amundson eds., *Atomic Culture: How We Learned to Stop Worrying and Love the Bomb*, (Bolder: University Press of Colorado, 2004); for a brief look at several Soviet anti-nuclear posters, visit the on-line archive at <http://www.russianposter.ru/archive.php?sid=Ggveh2YVuTukFk&rid=30080000000004> (accessed April 18, 2016).

culture, including literally scores of songs that ranged from silly to frightening, that entirely suit this paper, those reactionary nuclear songs have been omitted since they do not fit the cinematic theme of this paper.

While the reactionary, anti-nuclear songs of the Cold War vacillated between frivolous, comedic songs and truly frightening and ominous songs spanning multiple genres from rock to pop, movies at the time took a darker, brooding turn regardless of whether the plot was dramatic or satirical. Almost immediately following the atomic bombings of Hiroshima and Nagasaki, the United States Army Air Force (AAF) started churning out pro-atomic bomb movies. The 1946 propaganda film *Special Delivery* spent most of its almost thirteen minute run-time demonstrating how the AAF was not just a weapon for waging war, but “air power is peace power.”<sup>167</sup> The movie would alternate from showing and explaining wartime uses of a particular aircraft to showing and explaining the peacetime applications of those same aircraft. Most of the planes in the film were transports of one type or another, but toward the end, they shifted to the B-29 bomber, which is the same type of bomber that dropped the atomic bombs on Japan. The bombers in this film were being fitted out as drones to carry scientific instruments into environments that were unfit for human beings except for one bomber: Dave’s Dream. The crews were preparing for the Crossroads nuclear test at Bikini Atoll wherein a scrap fleet was loaded up with livestock and scientific instruments to gauge the effects, by extrapolation, of an atomic bomb on both men and military equipment. The movie, however, did not treat the nuclear test as a weapons test so much as a scientific

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<sup>167</sup> U.S. Army Air Forces, *Special Delivery*, Web, 1946, <https://archive.org/details/SpecialD1946> (accessed April 16, 2016).

experiment. Scientific neutrality rather than trying to place a purely positive spin on nuclear weapons, it seems, was the best that the AAF could manage.

The oeuvre of movies featuring atomic bombs quickly changed from neutral, scientific documentaries with pro-atomic agendas produced by the government to professionally-produced, private-production feature films portraying atomic bombs as the dangerous weapons they actually were. It did not take long after Stalin's Soviet Union tested its first atomic bomb in 1949 for Hollywood to give birth to the post-nuclear apocalypse film genre. In fact, a scant two years passed before the black and white movie *Five* hit the silver screen in 1951.<sup>168</sup> The premise of *Five* is that some type of atomic weapons-related disaster has eradicated all human life on the planet except for four men and one woman. The movie is either ignorant of the true effects of atomic war or eerily prescient of the proposed neutron bomb meant to kill humans with massive burst of lethal radiation, but leave buildings and civil engineering works unaffected as the infrastructure that supports society is still apparently functional. The five remaining human beings suffer survivors' guilt and have to come to terms with what they face as well as the crushing losses they have suffered.

The attitude toward atomic weapons shifted only slightly on movie screens for 1952's *Invasion USA*.<sup>169</sup> This movie, made two years after the start of the Korean War and only three years after the Soviet Union developed their bomb, depicted an invasion by an unnamed communist adversary that was almost certainly the Soviet Union. The

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<sup>168</sup> Arch Oboler, William Phipps, Susan Douglas Rubes, et al, *Five*, Dir. Arch Oboler, Web, 1951, <https://www.youtube.com/watch?v=aFaPFkTibWc> (accessed March 15, 2016).

<sup>169</sup> Gerald, Mohr, Peggy Castle, and Dan O'Herlihy, *Invasion USA*, Dir. Alfred E. Green, Web, 1952, <https://www.youtube.com/watch?v=Mg8a9UMqSzY> (Accessed March 14, 2016).

movie climaxes with an atom bomb attack on Manhattan with predictable results. Another movie from the early 1950s was *Split Second*, which used the atom bomb as a plot device more than anything.<sup>170</sup> Released in 1953, *Split Second* was a prison-break-gone-wrong movie wherein the escapees end up in a ghost town marked as part of an atomic bomb test. The hostages warn their captors that the bomb will be going off, but to no avail. Of course, the two belligerents die, but so does one of the innocent. The metaphor for those with authority getting themselves killed as well as causing needless death amongst innocents is clear. This also coincides with a two-year lag after the twenty-three US atomic bomb tests conducted in 1951; this was almost four times as many atomic bomb tests in one year as had ever been conducted previously. What this means is that Hollywood was taking about two years to issue cinematic retorts to real world nuclear issues.

In 1954, just two years after the United States detonated shot Ivy Mike and tested its first hydrogen bomb, and just one year short of the tenth anniversary of the Hiroshima and Nagasaki bombings, director Ishiro Honda released his cinematic staple, *Gojira* known in the United States as *Godzilla*.<sup>171</sup> The 1954 movie release was just two months after the unfortunate Lucky Dragon 5 incident during the Castle Bravo test at the Bikini Atoll. *Gojira*, a gigantic monster capable of wrecking cities, breathing atomic breath, and replete with skin bearing what appears to be a strange mixture of keloid and contracture scarification like one would find on an atomic bombing victim, is a metaphor for atomic

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<sup>170</sup> Alexis Smith, Jan Sterling, Stephen McNally, et al., *Split Second*, Web, Dir. Dick Powell, 1953, <https://www.youtube.com/watch?v=tZ7NfKvYFgE> (accessed March 11, 2016).

<sup>171</sup> Takashi Shimura, Akihiko Hirata, Akira Takarada, et al., *Gojira*. Web, Dir. Ishirô Honda, 1954, [http://www.amazon.com/gp/product/B003MUU9TM/ref=atv\\_feed\\_catalog?ref\\_=imdbre\\_tt\\_pv\\_vi\\_aiv\\_2&ag=imdbtag\\_tt\\_pv\\_vi\\_aiv-20](http://www.amazon.com/gp/product/B003MUU9TM/ref=atv_feed_catalog?ref_=imdbre_tt_pv_vi_aiv_2&ag=imdbtag_tt_pv_vi_aiv-20) (accessed April 1, 2016).



bombs. Born, according to the original movie, of overzealous nuclear testing in the Pacific, Godzilla is a punishment from mother earth in the first movie and its sequels wherein “history shows again and again how nature points out the folly of men.”<sup>172</sup> He, or more correctly, it was the embodiment of Japan’s very real fear of atomic weapons. For the Japanese, the threat of nuclear war was not a possibility: it was recent and painful history.

Perhaps it is because of all of the Pacific Ocean nuclear testing being in such relative proximity to Japan, that one of the most well-known anti-nuclear war movies of the 1950s was set in Australia. If there is a less clear reaction to an uptick in nuclear testing, it would be difficult to find one more damning than *On the Beach*: it was released after a two-year period which witnessed seventy-four US atomic bomb tests in both the Nevada Test Site as well as the South Pacific, not to mention Soviet tests.<sup>173</sup> *On the Beach* stars Gregory Peck, Ava Gardner, Fred Astaire, Anthony Perkins, and a host of other popular contemporary artists of the silver screen. It is the story of the US Navy submarine *Sawfish* that visits Melbourne, Australia.<sup>174</sup> The rub is that there has already been a nuclear war between unnamed belligerents in the northern hemisphere. The war has wrought devastation and the fallout from the bombs has wiped out all life north of the equator; the radioactivity is slowly, yet not slowly enough, drifting south. Most of the civilians in this seaside city as well as government and military officials are solemnly

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<sup>172</sup> Blue Öyster Cult, *Spectres*, Columbia, Legacy, 1977, Vinyl.

<sup>173</sup> Gregory Peck, Ava Gardner, Fred Astaire, et al., *On the Beach*, DVD, Dir. Stanley Kramer, 1959, Kino Lorber.

<sup>174</sup> The movie made \$11,000,000 at the box office and another \$5,500,000 in rentals. Adjusted for inflation to 2016, that comes out to a little more than \$120,000,000.00. Considering the Oscar winner for best picture that year, *Gigi*, made only two million dollars more, the popularity of *On the Beach* is clear. *On the Beach* <http://www.imdb.com/title/tt0053137/> *Gigi* [http://www.imdb.com/title/tt0051658/business?ref\\_=tt\\_dt\\_bus](http://www.imdb.com/title/tt0051658/business?ref_=tt_dt_bus) (accessed January 12, 2016).

resolute in their fate, yet some refuse to accept the inevitability of their situation. They hope where there is no hope.

The crew of the *Sawfish* then prepares to undertake a mission to take readings in order to determine if the radiation is abating in the northern hemisphere and to investigate a strange, unintelligible Morse transmission in San Diego. The readings are not only not decreasing, they are rising and the Morse transmission turns out to be a coke bottle caught up in the cord of a window blind tapping the key in the breeze. They return to an Australia in the midst of preparations for the inevitable. Government officials hand out euthanasia pills to the populace and lethal injections for babies who cannot take pills. The final scene pans away from the departing *Sawfish*, its crew returning to the US to die at home, and pans over to a sign on the city square which reads “there is still time... brother.” Superficially, the banner is meant as a proselytizing plea to repent, but it carries dual meaning. A coke bottle in the breeze can press the key; an accident can close the circuit. The coke bottle and Morse key are a metaphor for the perils of automatization of irrevocable, catastrophic response in a nuclear war. The movie is a clear warning that the world is on the brink, but has not yet crossed the Rubicon. There is still time.

A decade later, and no doubt in response to the 1962 Cuban Missile Crisis, Hollywood launched a wave of anti-nuclear war and anti-nuclear weapon movies into theaters and onto screens not only across America, but across the world. Arguably the biggest wave, in 1964, carried to theaters such movie greats as *Failsafe*, *Seven Days in May*, and *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb*. The interesting theme that each of these films share is a failure of command and control of atomic weaponry. In the case of *Seven Days in May* the problem is conspiracy: the

majority of the Joint Chiefs of Staff have hatched a plot to overthrow the President in a military coup because he seeks a disarmament treaty with the Soviet Union.<sup>175</sup> Fears of a potential coup were very real after the recent resignation of Major General Edwin A. Walker over a scandal revealing, that he was indoctrinating soldiers in his command in extreme right wing views. More disturbing was the fact that Walker espoused his conviction that prominent public figures such as former President Harry Truman were, in fact, closet communists.<sup>176</sup> This combined with the very hawkish stances of Air Force generals like Curtis LeMay and Thomas Power, especially during the Cuban Missile Crisis, were cause for serious concern.<sup>177</sup> The fear that human beings, or just the human condition, could eventually bring us to the brink of nuclear war was very real.

In *Failsafe* and *Dr. Strangelove*, the problem was technology itself, but still driven by humans and the unwavering and unforgiving systems that they created.<sup>178</sup> The technological and bureaucratic command and control systems created to ensure that there would be no accidental loss of life ensured precisely that loss of life. The basic plot of the movie is that a distant early warning signal is triggered which then triggers a series of events which bring nuclear-armed US bombers to their “failsafe” positions where they would loiter until either recalled or given the order to proceed with an attack. The warning turns out to be a false alarm and the bombers are recalled, but there is a

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<sup>175</sup> Burt Lancaster, Kirk Douglas, Fredric March, et al., *Seven Days in May*, Web, Dir. John Frankenheimer, 1964, [http://www.amazon.com/dp/B000OSC3GM?ref\\_=imdbref\\_tt\\_wbr\\_aiv&tag=imdbtag\\_tt\\_wbr\\_aiv-20](http://www.amazon.com/dp/B000OSC3GM?ref_=imdbref_tt_wbr_aiv&tag=imdbtag_tt_wbr_aiv-20) (accessed February 12, 2016).

<sup>176</sup> Eric Pace, "Gen. Edwin Walker, 83, Is Dead; Promoted Rightist Causes in 60's," *The New York Times*, November 2, 1993: Obituaries.

<sup>177</sup> Recorded Conversation between President John F. Kennedy and General Curtis LeMay, White House, Washington, D.C., October 19, 1962.

<sup>178</sup> Henry Fonda, Walter Matthau, Fritz Weaver, et al., *Failsafe*, DVD, Dir. Sidney Lumet, 1964, (Los Angeles: Columbia Pictures, 2000); Peter Sellers, George C. Scott, Sterling Hayden, et al., *Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb*, DVD, Dir. Stanley Kubrick, 1964, (Los Angeles: Columbia Pictures Home Video, 2001).

communications malfunction and one of the bomber wings gets the order to attack Moscow. No effort is spared to thwart the bombers including calling the Kremlin to warn them of their impending doom and help them shoot down the US bombers. In the end, Moscow is obliterated and, as a show of good faith and to fend off World War III, the President orders the atomic bombing of New York City where his wife was currently visiting. The movie ends with the phone line to New York going dead with an eerie, high-pitched tone.

The tone in *Failsafe* is clearly meant to be as serious as possible. The gravity of a situation wherein a technologically rogue bomber crew whose behavior is so conservative, so orthodox that their refusal to believe recall orders from not only the President of the United States, but their own family is predicted from the onset by their commander is beyond clear. Machines fail and in a world where automated systems govern such lethal machines, that failure could, and would, be catastrophic. *Failsafe's* tone is that which the general public should take when thinking about nuclear war and mutually assured destruction. The tone that Hollywood ascribed to the leaders of nuclear states was far different.

*Dr. Strangelove* was similar in plot to *Failsafe* with two critical differences: 1) the story was predicated upon an unstoppable Soviet doomsday device triggered by a rogue nuclear attack on the USSR, and 2) it was a dark, satirical comedy meant to expose the folly of the leaders who brought humanity to this point in the first place. The characters in *Dr. Strangelove* are so transparent that they are almost caricatures of themselves. They represent archetypes of the hawkish general, the mad scientist, the devious Russian diplomat, the power-mad base commander, the clueless yet well-meaning president, and

his philandering counterpart in Moscow. In *Dr. Strangelove* a deranged US Air Force strategic base commander slips the tethers of sanity and embarks on his own personal World War III by ordering an atomic bomb attack on Russia to defend American “fluids.” Due to communications blackouts followed by radio damage, one crew does not get the recall message and continues on its bomb run. The resultant atomic blast triggers a Soviet doomsday machine that coats the Earth in almost a century of lethal fallout. As a result, the US and USSR resort to saving humanity by a one to ten male to female ratio mating scheme. The men of power in science, government, and the military would each be allowed ten young, attractive women with whom to mate. The whole thing drips with chauvinism and clearly illustrates, in Hollywood’s preferred medium, the stark disconnect between the powerful classes and the middle and lower classes. But the entire genre is also rife with masculinist undertones which exclude the agency of women. Another example of this is *Planet of the Apes*.

The 1968 movie *Planet of the Apes*, starring Charlton Heston, is based upon a dystopian future wherein American astronauts go into an artificially induced, long-term sleep to travel great distances and awaken on a crash course with a planet in the distant future.<sup>179</sup> The crew, minus the female who conveniently died in cryogenic sleep due to a mechanical malfunction, lands upon a hostile planet where apes have evolved to the apex species and man has taken the intellectual place of the ape but in the role as a nuisance species. Humans in this reality do not even have the capacity for speech, and when the leader of the newly arrived humans speaks, it is as if a lethal blasphemy has been

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<sup>179</sup> Charlton Heston, Roddy McDowall, Kim Hunter, et al., *Planet of the Apes*, Web, Dir. Franklin J. Schaffner, 1968, [://www.amazon.com/dp/B0053EZWZQ?ref\\_=imdbref\\_tt\\_wbr\\_aiv&tag=imdbtag\\_tt\\_wbr\\_aiv-20](http://www.amazon.com/dp/B0053EZWZQ?ref_=imdbref_tt_wbr_aiv&tag=imdbtag_tt_wbr_aiv-20) (accessed January 4, 2016).

unleashed upon the ape world. This is a world where science is treated with fearful skepticism, the scientist chimpanzees who help Heston are treated with disdain or downright disgust, and the powerful orangutans that serve as both civic leaders and defenders of the ape faith treat Heston as worse than an abomination. Heston escapes of course, with a mute, ignorant, and nearly helpless female, and traverses the “Forbidden Zone” where nothing grows and nothing lives, to finally come across ruins of a former civilization run by “men.” Heston comes to the stark realization that this is not a new world, but the shattered, post-nuclear apocalypse remnants of human civilization on Earth. He marvels that “they really did it [...] they blew it up” and he damns “maniac[al]” humanity “all to hell.”<sup>180</sup> Premiering just four years after an increasingly bellicose Leonid Brezhnev came to power in the USSR, the movie’s message is clear: if humanity does not get rid of nuclear weapons, then nuclear weapons will get rid of humanity. The stone age is just the push of a button away.

Two years after Ronald Reagan won his lopsided victory over Jimmy Carter in 1980, *Atomic Café* was released.<sup>181</sup> *Atomic Café* was a bizarre conglomeration of US government propaganda and documentary films mixed with background music that became a cult classic. Its 1982 release was a clear editorial on the status of what people perceived global security to be. Its musical score was chipper, its subject matter serious and dour, but dealt with in a manner that almost sanitary. The tone of the movie was glib and meant to convey the glib attitude that the present administration held toward the

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<sup>180</sup> Charlton Heston, Roddy McDowall, Kim Hunter, et al., *Planet of the Apes*, Web, Dir. Franklin J. Schaffner, 1968, [://www.amazon.com/dp/B0053EZWZQ?ref\\_=imdbref\\_tt\\_wbr\\_aiv&tag=imdbtag\\_tt\\_wbr\\_aiv-20](http://www.amazon.com/dp/B0053EZWZQ?ref_=imdbref_tt_wbr_aiv&tag=imdbtag_tt_wbr_aiv-20) (accessed January 4, 2016).

<sup>181</sup> Paul Tibbets, Harry S. Truman, W.H.P. Blandy, et al., *Atomic Café*, Web, Dirs. Jayne Loader, Kevin Rafferty, and Pierce Rafferty, 1982, <https://vimeo.com/25154726> (accessed March 8, 2016).

potentiality of Armageddon. The film closes with a montage of atomic bomb blasts and mushroom clouds set to a chipper musical score. Humanity, according to *Atomic Café* surely seemed doomed, but one might as well make the best of the inevitable and keep a stiff upper lip.

The animated cartoon *When the Wind Blows* shows a similarly grim future for humans, but with far more finality.<sup>182</sup> The 1986 film, released just two years after Ronald Reagan won reelection, was produced when fears of nuclear war between the US and USSR were growing as a result of increasingly worrisome and bellicose rhetoric from President Ronald Reagan. The movie was released just one year after Ronald Reagan joked during a microphone check, "My fellow Americans, I am pleased to tell you I have signed legislation to outlaw Russia forever. We begin bombing in five minutes."<sup>183</sup> The quip, although intended as a poorly thought out joke, was taken with grave seriousness coming from the man with the authority to launch a preemptive nuclear strike and his finger on the button. For the recently elevated Soviet leader, Mikhail Gorbachev, it would have been reasonably alarming.

The movie shows the life of an elderly couple in Britain preparing their home on the eve of an impending nuclear war in accordance with a government civil defense pamphlet. The elderly husband keeps confusing the Russians for the Germans as adversaries and, when he imagines what the war might look like, keeps reverting to scenes reminiscent of World War II. His confusion as to the nature of nuclear war and the

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<sup>182</sup> Peggy Ashcroft, John Mills, Robin Houston et al., *When the Wind Blows*, Web, Dir. Jimmy T. Murakami, 1986, <https://www.youtube.com/watch?v=Qv36YqNM20k> (accessed March 1, 2016).

<sup>183</sup> Lou Cannon, "Why the Band Has Stopped Playing for Ronald Reagan," *The Washington Post*, December 21, 1986, <https://www.washingtonpost.com/archive/opinions/1986/12/21/why-the-band-has-stopped-playing-for-ronald-reagan/afdb277a-8228-458e-8460-31109c4cbf04/> (accessed March 5, 2016).

harsh realities thereof is still a much more realistic view of the impending war than his wife has: she simply rejects any of the realities inherent in such a conflict, instead tending to her daily life as if nothing has changed. As he is preparing an interior fallout shelter by removing the doors of his home, she is more concerned that he will scratch the paint than she is with radioactive holocaust. The man dotes on his wife while he prepares for the worst, but even he does not grasp what the worst will truly entail.

Less than thirty minutes into the 120 minute film, an announcer comes on the radio warning listeners that the “enemy” has launched a missile attack and that there is approximately three minutes to reach safety before they get hit. When the bombs eventually do start falling, the wife is still more concerned with going outside to gather the laundry off the line, turning off the stove, and tending her kitchen than she is with making it to the interior shelter before the blast wave hits. At this point the husband’s usual, understandingly cooing responses to his wife’s lack of realism evaporate like London under the searing heat that will soon envelop it in artificial hell: “Come back you stupid bitch and get in the shelter!” he screams, drawing a look of ire from his wife for his lack of manners.<sup>185</sup> “How dare you talk to me like that” she replies indignantly while standing arms crossed and offended. She begins to lecture him only to be interrupted by him physically grabbing her and throwing her into the shelter, shielding her with his own body. She still is either in denial about what is about to happen or is incapable of grasping the severity of the situation. As predicted, the bomb goes off with devastating effects. The next fifty minutes of the film shows the couple dealing with the aftermath and slowly

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<sup>185</sup> Peggy Ashcroft, John Mills, Robin Houston et al., *When the Wind Blows*, Web, Dir. Jimmy T. Murakami, 1986, <https://www.youtube.com/watch?v=Qv36YqNM20k> (accessed March 1, 2016).



dying horrible, prolonged deaths due to radiation poisoning. Even in cartoons, there is no escape from the realities of nuclear war.

There were more nuclear holocaust-themed movies in the 1980s such as the made-for-television movies *Threads* and *The Day After*, and Hollywood's *Terminator*, but the number of nuclear holocaust themed films dropped off severely after Ronald Reagan left office in 1988 and even more so after the collapse of the Soviet Union in 1991.<sup>186</sup> In fact, the entire genre of atomic bomb movies shifted drastically after the Cold War officially ended to focus more on rogue players attaining nuclear arms in order to further their own criminal or nationalistic goals. In many cases, the role of nuclear weapons themselves changed from instruments of man's destruction to instruments of his salvation.

For example, 1998 saw two movies released wherein nuclear weapons were used not to destroy humanity, but to destroy that which would destroy us. The plots of both movies are such that an asteroid threatens the planet and humanity's last, faint hope is to destroy the imminent doom with nuclear weapons. In *Armageddon*, the plan succeeds but only after the protagonist sacrifices himself to assure the bomb goes off.<sup>187</sup> It is a Christ-like sacrifice of father for daughter, man for humanity. In *Deep Impact*, the crew of the spaceship tasked to destroy the asteroid fails to completely eradicate the threat, but due to proper, prior planning reminiscent of Cold War civil defense planning, humanity will

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<sup>186</sup> Karen Meagher, Reece Dinsdale, David Brierly, et al., *Threads*, Web, Dir. Mick Jackson, 1984, <https://vimeo.com/18781528> (accessed March 7, 2016); Jason Robards, JoBeth Williams, Steve Guttenberg, et al., *The Day After*, DVD, Dir. Nicholas Meyer, 1983, (MGM, May 18, 2004); and Arnold Schwarzenegger, Linda Hamilton, Michael Biehn, et al., *The Terminator*, Web, Dir. James Cameron, 1984, [http://www.amazon.com/dp/B00153ZC8Q?ref\\_=imdbref\\_tt\\_wbr\\_aiv&tag=imdbtag\\_tt\\_wbr\\_aiv-20](http://www.amazon.com/dp/B00153ZC8Q?ref_=imdbref_tt_wbr_aiv&tag=imdbtag_tt_wbr_aiv-20) (accessed January 5, 2016).

<sup>187</sup> Bruce Willis, Billy Bob Thornton, Ben Affleck, et al., *Armageddon*, DVD, Dir. Michael Bay, 1998, (Los Angeles: Buena Vista Home Entertainment / Touchstone, 1999).

survive.<sup>188</sup> In 2012's *The Avengers*, the technological wizard, super-genius, former arms dealer Tony Stark, aka Ironman, diverts an incoming nuclear weapon, fired on the orders of a government shadow agency, in order to wipe out an invading alien army and close an interdimensional portal and thereby save humanity.<sup>189</sup> He intends to sacrifice himself in order to save mankind, again in Christ-like fashion, but is saved at the last second via deus ex machina. Despite requiring human sacrifice in the first and last movies and failing to completely negate the threat in the second, nuclear weapons still save humanity. Plowshare was finally realized if only in cinematic fiction,

Similarly intriguing is the shifting role of monsters and their sources in movies of the first decades of the Twenty-First Century. In the most recent iteration of *Godzilla*, the monster is not created by nuclear weapons testing: the weapons testing was a ruse to cover up attempts to destroy the massive creature using hydrogen bombs.<sup>190</sup> The real threat are two smaller monsters trying to get radioactive sources to feed off of while the larger, more benevolent *Godzilla* tries to stop them, eventually relying on its own atomic breath to decide the battle. The metaphor is clear: nuclear weapons are not only useful, but they can be used to stop smaller, less stable monsters from getting their claws on atomic capabilities as well. *Godzilla*, despite the path of destruction that it created in its battle with the smaller monsters, is hailed as a hero. This is not the only shift in nuclear thinking and fear-shift.

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<sup>188</sup> Robert Duvall, Téa Leoni, Elijah Wood, et al., *Deep Impact*, DVD, Dir. Mimi Leder, 1998, (Los Angeles: Paramount, 2004).

<sup>189</sup> Robert Downey Jr., Chris Evans, Scarlett Johansson, et al., *The Avengers*, DVD, Dir. Joss Whedon, 2012, (Los Angeles: Walt Disney Video, 2012).

<sup>190</sup> Bryan Cranston, Aaron Taylor-Johnson, Elizabeth Olsen, et al., *Godzilla*, Web, Dir. Gareth Edwards, 2014. [http://www.amazon.com/dp/B00NM7IR26?ref\\_=imdbref\\_tt\\_wbr\\_aiv&tag=imdbtag\\_tt\\_wbr\\_aiv-20](http://www.amazon.com/dp/B00NM7IR26?ref_=imdbref_tt_wbr_aiv&tag=imdbtag_tt_wbr_aiv-20) (accessed April 12, 2016).

In the latest version of the *Planet of the Apes* franchise, 2011's *Rise of the Planet of the Apes*, mankind does not meet its end because of a nuclear war.<sup>191</sup> Instead, human beings fiddling with DNA and genetically altered pharmaceutical therapies create a monster disease, a viral treatment intended to cure Alzheimer's disease, which gives apes human-level intellect while simultaneously wiping out humanity. The new fear is not massive stockpiles of nuclear weapons on ready alert which, thanks to arms control and reduction treaties, have become smaller, but minute viruses capable of wiping out humanity created by that same species. Now the problem is not nuclear weapons, but genetic engineering that is the genesis of ape hegemony. Irresponsible manipulation of the human genome has replaced irresponsible application of atomic power as the new chimera. The only thing that has changed is the particular brand of technology that destroys mankind, while the only thing that has remained the same is that people tinkering with science that they do not completely understand remains a frightening prospect rife with unforeseen hazards

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<sup>191</sup> James Franco, Andy Serkis, Freida Pinto, et al., *Rise of the Planet of the Apes*, DVD, Dir. Rupert Wyatt, 2011, (Los Angeles: 20th Century Fox, 2011).

## CONCLUSION

Propaganda has been around almost since the beginning of time in one form or another and more than likely will continue into the foreseeable future, as it is a useful tool for swaying public opinion. Governments and the clergy have been using propaganda as a tool for governance for centuries and it clearly has had an effect on the populations upon which it is employed. The precise definition of propaganda is fluid and highly dependent upon the entity defining the term, however the variety of propaganda that Jacques Ellul probably the most accurate definition of the type of propaganda that the United States and the Soviet Union employed during the Cold War. His was a more comprehensive understanding of propaganda as a nationalist political tool and therefore the best metric for this paper.

Nuclear weapons testing and the perception thereof is clearly a controversial issue with long-lasting effects that affect people today. In this thesis, I have shown that the Cold War adversaries, the United States and the Union of Soviet Socialist Republics, intended to not only propagate weapons of mass destruction for military ends, but to rebrand and market those weapons as instruments for the greater good of mankind. This rebranding of weapons as tools was very much in line with the propaganda philosophy that Jacques Ellul espoused which both the U.S. and USSR utilized as a matter of policy. Although the Soviet Union and the United States did not employ every aspect of Ellul's methodology vis a vis propaganda in every instance, the overarching idea of Ellul's propaganda theory is clear in state communications to the general public.

Since the West and the East employed propaganda on both sides of the Iron Curtain to mold public opinion, it is logical to assume that, despite ideological differences, both sides would employ similar, if not identical, forms of propaganda based on the criteria and methods that were most successful. Indeed, the aims of propaganda employed during the Cold War were very similar: to make the political and economic system of the opponent seem less valid than the preferred, domestic political ideology. The Soviet Union used posters to demonstrate the shortcomings of capitalism and superiority of communism because they did not have the ubiquitous evidence of relative liberty and high standard of living that living in a western country at the time would have provided. As a result, the Soviet Union relied heavily upon propaganda programs designed to show the inferiority of the capitalist system while the capitalist system relied on propaganda, such as the Red Scare of the 1950s, to demonstrate that the Soviet Union was acting to undermine, or even destroy, the western way of life based on capitalism that so many in the United States enjoyed.

American attitudes toward atomic bombs immediately after World War II was overwhelmingly positive due to Japan's hasty surrender within a few days of the atomic bombings of Hiroshima and Nagasaki. Support was so high, in fact, that some Americans thought it prudent to turn Japan into a smoldering, radioactive wasteland. The atomic bomb attained a place of popular prestige spawning atomic-themed, popular culture phenomena such as atomic toys, atom bomb-themed beauty pageants, and atomic just about anything in language. The United States had a monopoly on destructive power and as such this country enjoyed a brief atomic heyday wherein anything radioactive was seen as beneficial. Once the Soviet Union developed their own atomic weapons,

however, nuclear sentiment in the United States and abroad started to shift radically. The organically? Domestically-produced? Homegrown? American atomic bomb that won the war and saved American lives was no longer a savior but a global threat.

A key component of the Cold War was the military industrial complex that ostensibly prevented the rival countries from destroying each other, but in reality brought each of them closer to annihilation with every new nuclear weapon that rolled off the assembly line. Although the concept of mutually assured destruction kept each superpower from obliterating the other, the fearsomeness of the weapons in each arsenal and excessive sizes thereof combined with the general distrust each country demonstrated toward the other and a certain level of distrust toward technology created anxiety related to nuclear weapons and accidental Armageddon. Both the United States and the Soviet Union recognized this dread of nuclear weapons inherent in their populations and chose to rebrand the weapons as peaceful tools for the benefit and betterment of humanity. This, however, was disingenuous.

The United States Atomic Energy Commission was interested in using atom bombs for terraforming, but the timing of Eisenhower's Atoms for Peace program, along with the AEC's Operation Plowshare, is suspicious at best considering they both coincided with a marked increase in atomic testing as well as a decline in public support for nuclear weapons. The decline in public support is demonstrated by the rise in anti-nuclear sentiment in popular culture. As a result of this negative public image, both the United States and later the Soviet Union, turned to employing nuclear weapons in massive engineering projects and making propaganda films about those projects. The films were designed to demonstrate that nuclear weapons were not only safe, but

beneficial to humanity. The movies, however, were not entirely honest or accurate which seems to be by design. good

Two nuclear tests, the Sedan test at the Nevada Test Site in America and the Chagan shot at the Semipalatinsk Nuclear Test Range in the Kazakh Soviet Socialist Republic of the USSR, were designed to create artificial lakes utilizing the atomic bombs as cratering charges. The tests did what they were designed to do in that they each created a crater capable of containing millions of gallons of water. The problem with the tests, however, is that they created environmental disasters. The Sedan test inadvertently sent tons of radioactive debris into the atmosphere, which returned to earth as radioactive fallout and created health problems ranging from minor to major ailments, from increased risk of cancer and birth defects to death, wherever it fell. The Chagan test, along with the other Polygon tests and the production facilities that made the fuel for the bombs, left a legacy of radioactivity that is still causing birth defects and a public health nightmare today. Despite the dangers of these two tests and others like them, the United States and the Union of Soviet Socialist Republics both made propaganda movies about the peaceful uses of nuclear weapons that featured these artificial lakes as mankind's victory harnessing the atomic bomb for safe, peaceful purposes. They were truly neither safe nor peaceful. If the two propaganda films framing the two tests, and by extension nuclear weapons, as beneficial to humanity enjoyed any popular support or acceptance, popular culture seems to disagree.

Film and music from the 1950s to the 1980s was rife with anti-nuclear sentiment and the very clear expression of the fear that people harbored toward potential nuclear annihilation. Singers very explicitly tailored their songs to either mock or demonstrate the

dangers of nuclear war and the fragility of the human condition. They warned of both purposeful and accidental nuclear war in tones both peppy and dulcet, humorous and depressing, fatalistic and hopeful. Songs about atomic weapons and atomic war were minutes-long editorials that burrowed into peoples' heads like earworms, and resonated and echoed with vibrations of guitar strings. They were the jingles of the anti-nuclear ad campaign. Constant. Reinforcing.

The motion picture industry also waged peace if not at least reason on the nuclear war industry during the Cold War. Movies which ranged from the fantastical such as *Godzilla*, *Planet of the Apes*, and *Terminator* to the frighteningly plausible *Fail Safe*, *On the Beach*, and *When the Wind Blows* appeared on movie screens from the 1950s to the 1980s with almost predictable regularity and very little, if any, decline in popularity over the course of those decades. These movies all represented a very clear and very real fear of nuclear weapons and the concomitant technology and authority required to make them a feasible part of the national defense strategies of both super powers. Nuclear weapons combined with automated defense technologies would, unless tempered with disarmament, rational thought, and reasonable military and political leaders on all levels, eventually bring about unprecedented destruction if not the end of life on earth itself. Even if all life was not wiped out, civilization would change so drastically as to make it unpalatable or even unrecognizable. Humanity could lose its primacy among the other animals of the world in an apocalyptic, post-nuclear world. The United States and Soviet Union tried to portray nuclear weapons as tools, but Hollywood was not going to allow the public to think that atom bombs were anything but the weapons they were as long as



the possibility of nuclear war existed in a setting wherein its likelihood was measured in terms of probability versus possibility.

After the Soviet Union collapsed in 1991, Hollywood's attitudes toward nuclear weapons reflected the shifting attitudes toward what was no longer the Soviet Union but a new, ostensibly democratic Russian Federation that was in a financial crisis so severe as to make any military offense on its part as materially impossible as it was politically improbable. Russia was no longer the enemy as far as Hollywood was concerned and as such, the Soviet Union was no longer the villain in movies that portrayed nuclear weapons. Movies such as *Deep Impact* and *Armageddon* depicted cooperative efforts between the former adversaries to pool their scientific knowledge and nuclear weapons to not only serve, but save humanity. Russian and American agents in movies like *The Peacemaker* and *The Sum of All Fears* were now working in cooperation to stop criminals, terrorists, and misguided fanatics from using rogue atomic bombs to further their financial or political goals.<sup>192</sup> Now the bombs themselves were neither good as the United States and Soviet Union had claimed, or bad as Hollywood had previously claimed, but neutral tools that were only as good or bad as the intentions of those controlling them.

The bombs were not accepted as tools until Hollywood depicted them as tools and the reason that Hollywood did so was because it was reflecting current values and popular opinion. In fact, radiation not only became a tool for saving humanity, but for transforming and evolving the species as it was in the Marvel superhero movie universe

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<sup>192</sup> George Clooney, Nicole Kidman, Marcel Iures, et al., *The Peacemaker*, DVD, Dir. Mimi Leder, 1997, (Los Angeles: Dreamworks Video, 1998); Ben Affleck, Morgan Freeman, Ian Mongrain, et al, *The Sum of All Fears*, DVD, Dir. Phil Alden Robinson, 2002, (Los Angeles: Paramount, 2002).

in movies such *The X-men*.<sup>193</sup> The cinematic idea of nuclear bombs being converted from the destruction of man to his salvation is no more poignantly exemplified than in *The Avengers* when the technologically symbiotic Ironman redirects an incoming nuclear missile destined to wipe out a major metropolis to annihilate an invading alien army. Nuclear weapons were no longer the doom of man, but a minor plot device.

In order to know and understand how people felt about nuclear weapons during the Cold War, one need only turn to the representation of nuclear weapons, nuclear testing, and even nuclear power in popular culture at the time to grasp public opinion. If one wishes to view a snapshot of that same perception today, and therefore an insight into how people remember and react to the concept of nuclear weapons in the modern world, one need only glance again at popular culture to see a reflection of society. If pop culture is any indication of peoples' fears, then the real threats of terrorist attacks, rogue states, and domestic abuse of power have replaced the very real threats of nuclear conflict during the Cold War. Gojira still exists, but it has been Americanized as Godzilla and its affiliation with good or evil, as well as its gender, is nebulous at best. Radioactive monsters have been replaced with radioactive heroes and the real enemy is the zombie. Nuclear weapons are not the enemy anymore, but that perception is not a result of clever pro-nuclear propaganda, but due to the presence of threats more tangible and seemingly probable in a post-9/11 world combined with a lack of propaganda in the form of popular culture to reinforce the idea that those weapons are still dangerous. The irony of the situation is that, if nobody remembers what nuclear weapons can do and they take their

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<sup>193</sup> Patrick Stewart, Hugh Jackman, Ian McKellen, et al., *The X-men*, DVD, Dir. Brian Singer, 2000, (Los Angeles. Fox Home Entertainment, 2001).

cues about what to fear from Hollywood which feeds off of public opinion in a feedback loop, perhaps zombies truly are the real danger now.

Both the Nevada Test Site in America and the Semipalatinsk Nuclear Test Range in Kazakhstan were literally ground zero for some of the most extensive and ecologically damaging experiments with nuclear weapons and remain radioactive today. The perception of these test sites is still a matter of controversy today. In Kazakhstan, there seems to be an institutional acceptance of the impact that nuclear testing at Semipalatinsk had on the surrounding populace and an earnest expression of regret to the victims thereof. However, the government in Kazakhstan can afford this kind of state largesse because it enjoys a lack of culpability due to the fact that the Soviets conducted these tests, not the Kazakh government. Because of this, there is a moral and ethical chasm between the Republic of Kazakhstan and the testing conducted on its sovereign soil. The Kazakhs around their test site do not remember the tests at the Polygon as part of a domestic effort to build atomic and thermonuclear weapons, but as a Soviet, almost alien effort. The United States does not enjoy that political and ideological distance to shield itself from its nuclear testing history.

Today the Polygon is still the Polygon. The nomenclature has not changed because there was never a need to change it. The name itself, like the radioactivity that contaminates the land there, conveys a sort of permanence of memory that cannot be erased. In the collective memory of Kazakhstan, the Polygon is not something that the Kazakhs did to themselves: it is something that was done to them. Despite the fact that thousands of Kazakhs worked on the site, they can distance themselves from this by placing agency solely in Soviet Russian? hands and washing their hands of it. In this

case, the test range does not damage national identity: it strengthens it. Theoretically, this should not be the case for the United States as the government that tested the bombs there is still the established authority but with different people in positions of power.

In America, save the addition of a government agency or two, the system is still essentially the same as it was in the Cold War. The Department of Energy still owns and administers the Nevada Test Site under the aegis of the National Nuclear Security Administration (NNSA), but something has changed.<sup>194</sup> Although the condition of the test range has changed little in terms of radioactive contamination, the purpose of the range has and therefore the name has, as well. As of 2010, the Nevada Test Site has been renamed as “Nevada National Security Site” in order to “more aptly reflect the range of homeland security, nuclear and energy operations that take place at the NNSA site” according to the “semiautonomous” National Nuclear Security Administration.<sup>195</sup> The term “test range” harkens back to a time of danger and contamination: the term “National Security Site” is a much more politically palatable term, which carries an air of critical importance with connotations of secrecy and an almost sacrosanct awe. The name discourages asking too many questions for fear of seeming too interested in an area that is patriotic and legal taboo. After all, who wants to question the importance of national security? After the “peaceful” nuclear tests conducted for the betterment of humanity at that site and others like it, probably everyone should.

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<sup>194</sup> Nuclear Threat Initiative, “Nevada Test Site Renamed,” *NTI Global Security Newswire*, August 24, 2010, <http://www.nti.org/gsn/article/nevada-test-site-renamed/> (accessed February 28, 2016).

<sup>195</sup> *Ibid.*

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