

FACING THE UNPRECEDENTED:
AMERICA IN THE FIRST DECADE OF THE NUCLEAR ARMS RACE, 1949-1960

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Introduction

The end of the Cold War brought with it new perspectives about nuclear weapons. After the Soviet Union disbanded the threat of nuclear holocaust receded, but new threats emerged. The idea of a 'dirty bomb', a small nuclear device which terrorists could smuggle into a city and detonate, concerns many people. The threats though do not seem as real without two visible powers struggling for dominance. Humorous nuclear references abound in popular culture, as in *The Simpsons* where mutated fish live in the river next to the nuclear power plant, and where a new mall's air-conditioning will have the power of one million hydrogen bombs.¹ There was a time, however, when people were not aware of the dangers of radioactive fallout. This was a time when the Cuban Missile Crisis was more than a decade away, and the accidents at Three Mile Island and Chernobyl, and even the hydrogen bomb itself, were inconceivable.

As a result of the struggle between the two super powers, nuclear issues are usually seen as a political and military subject, not a social one. Therefore most work on the subject focuses on defence or foreign policy. The majority of writing on nuclear warfare was published during the Cold War itself, and therefore was infused with Cold War ideology. Its focus was on the battle between the US and the Soviet Union; what each side was doing to achieve supremacy both politically and militarily, and World War III could be avoided in the process. It would have been difficult for these authors to write about the social impact even if they had wanted to. The general public were often fearful of the new weapons, and sometimes critical of government policy. These are not matters

¹ Matt Groening, *Lisa the Skeptic*, *The Simpsons* (episode 908) Fox Television, originally airdated 23rd November 1997

which authors would wish to discuss when trying to assert US superiority. Since the end of the Cold War the focus has been mainly on the former Soviet Union. With the collapse of the regime came access to documents buried within the USSR for decades. Academics have been utilising these documents to look at the aspects of the Cold War in the communist states.² Books which did not deal specifically with the Soviet Union gave a more general account of the Cold War. For example, Martin Walker, in his 1993 book *The Cold War*, provides an in-depth look at the political aspects of the era while barely mentioning nuclear weapons, much less the social impact.³

By ignoring the social impact, however, we are missing a large part of the Cold War. This study aims to look at the social aspects of life under 'the Bomb' from the first Soviet atom bomb test in 1949 until the end of the Eisenhower Administration. The study also looks at how adequately this topic has been dealt with in the existing literature. The books discussed here are samples of what is available.

General histories of the period deal a little with nuclear matters such as radioactive fallout, civil defence, and nuclear accidents. John Patrick Diggins book, *The Proud Decades: America in War and Peace, 1941-1960*, touches briefly, though inadequately, on these three subjects. He first mentions the subject of nuclear fallout as an environmental issue, then immediately switches to the subject of nuclear accidents without discussing fallout at all. After describing the public concern over an incident in Mars Bluff, South Carolina, where an atom bomb was accidentally dropped on a house (an incident which will be discussed in full in chapter three), he moves backwards to

² Such as Jonathan Brent and Vladimir P. Naumov with their book *Stalin's Last Crime: The Doctor's Plot*, which discusses Stalin's belief that the US was intending to strike major Soviet cities with nuclear weapons. Jonathan Brent and Vladimir P. Naumov, *Stalin's Last Crime: The Doctor's Plot*, London: John Murray, 2003, p239

³ Martin Walker, *The Cold War*, 2nd ed. (London: Fourth Estate Ltd, 1993; reprint, London: Vintage, 1994)

1957 to discuss Nevil Shute's novel *On The Beach*.⁴ Jumping back to 1958, Diggins discusses the building of fallout shelters, after New York Governor Nelson Rockefeller's bunker building plans. He implies that people only began to think about building fallout shelters around that time, when in fact they had been discussing it throughout the decade (as will be shown in chapter one).⁵ Diggins then switches back to the issue of fallout and the accusations in the late fifties that the AEC withheld information concerning the problem of strontium-90, a deadly radioactive element. Finally he discusses people protesting during the national civil defence drill in 1955. The whole section is a mishmash of inaccurate information, which jumps backwards and forwards chronologically, presenting a very confusing view of nuclear issues during the period.

Diggins deals more satisfactorily with the issue of arms control. He discusses the Acheson-Lilienthal plan, later transformed into the Baruch plan, for international control of nuclear material. He mentions that arms control was a 1956 election issue, where Adlai Stevenson made it one of his campaign issues. Diggins also discusses the series of proposals and counter-proposals from both the US and Soviet Union during the period. While he does not provide details of the proposals, it does give the reader a feeling of the debate.⁶

Elaine Tyler May, in her book *Homeward Bound: American Families in the Cold War Era*, does not raise the issue of arms control, but does discuss some aspects of civil

⁴ Diggins also inaccurately states that the war in the novel started between India and Pakistan. It was started by Albania, which bombed Italy. The next bomb was on Tel Aviv, for which nobody knew who was responsible. The British and Americans were drawn in, and flew over Egypt in protest. The Egyptians then bombed London and Washington with Russian bombers, to spark a nuclear war between East and West. India and Pakistan are not mentioned in the novel. Nevil Shute, *On The Beach* (New York: William Morrow and Company, 1957), p93

⁵ John Patrick Diggins, *The Proud Decades: America in War and Peace, 1941-1960* (New York: W.W. Norton & Company, 1989), p328

⁶ Ibid., p316-18

defence. *Homeward Bound* discusses the new situations women found themselves dealing with in the post-war period, and how they coped with them. This is the context in which she looks at civil defence. During the fifties women were requested to prepare for a nuclear attack by turning their homes into shelters. This meant storing supplies of canned food and water, regularly rotating the cans and changing the water every three months. It was known as 'Grandma's Pantry'.⁷ As May's focus is solely on the role that women were requested to play in civil defence, she misses out the rest of the programme, such as other government civil defence policies and national civil defence drills.

General American history books offer even less on the nuclear issues. Howard Zinn's popular book, *A People's History of the United States: 1492 to Present*, looks at the whole of US history through the eyes of the previously unrepresented – women, African-Americans, and labourers to name a few. These groups were not people that were heavily involved in nuclear issues, at least from Zinn's view point as he barely mentions them. While he is very critical of the decision to drop A-bombs on Hiroshima and Nagasaki, that topic is discussed as part of World War II rather than the dawn of the atomic age.⁸ Though he briefly mentions shelter building and air raid drills, civil defence is not a topic that he goes into, even though it involved exactly the groups of people his history is about. His chapter on the period, which covers the forties and fifties focuses mainly on World War II and the beginnings of the political Cold War, while leaving the military Cold War alone. In terms of what he is trying to achieve with this book, that omission is understandable; the strategic side of the Cold War has been written about

⁷ Elaine Tyler May, *Homeward Bound: American Families in the Cold War Era* (New York: Basic Books, Inc., 1988), p103-109

⁸ Howard Zinn, *A People's History of the United States*, 2nd ed. (New York: Harper's Colophon, 1980; reprint, New York: Harper's Perennial, 1995), p413

extensively (see examples below). However, it would have been fitting for Zinn to discuss nuclear issues which impacted on the lives of ordinary people.

Text books also lack much detail about nuclear issues in the fifties. George Brown Tindall and David E. Shi's *American: A Narrative History, Volume Two*, which covers the period from the Civil War onwards, discusses the atom bomb only in regard to Hiroshima and Nagasaki and does not mention civil defence or radioactive fallout at all. They briefly mention tactical nuclear weapons, but as an aspect of military budgeting rather than the possibilities for their development and use. Instead Tindall and Shi focus on Eisenhower's domestic policies and the emerging civil rights movement.⁹

Nuclear deterrence was a popular topic for academics in the nineteen eighties. An example of this is Philip Bobbitt's *Democracy and Deterrence*, in which he discusses the concepts of strategic bombing, massive retaliation, and controlled response, and how they were incorporated into defence and foreign policy. 'Massive retaliation' was the policy of the Eisenhower administration in the 1950s, which aimed for deterrence by massive retaliatory power. If the Russians bombed the United States or Europe, then the United States would bomb Russia with such force that their military and industry would be wiped out. Bobbitt describe the development of the atomic bomb as "the orderly continuation"¹⁰ of previous strategic bombing policies, indicating that the shift in emphasis from conventional to nuclear weapons during the Eisenhower Administration was perhaps not as significant a policy decision as some believe. *Democracy and Deterrence* is mostly a policy discussion, as is *US Nuclear Strategy: A Reader*, co-edited by Bobbitt along with Lawrence Freedman and Gregory F. Treverton. This book is

⁹ George Brown Tindall, and David E. Shi., *America: A Narrative History, Volume Two*, 5th ed. (New York: W.W. Norton & Company, 1984; reprint, New York: W.W. Norton & Company, 1999), p1460-1501

¹⁰ Philip Bobbitt, *Democracy and Deterrence*, 1st ed. (London: Macmillan Press Ltd, 1988), p21

divided chronologically, discussing nuclear policy in each time period by using articles and government documents contemporary to that period about strategy and policy. There are two sections of this book relevant to this study, covering the periods 1945-53 and 1953-61 – ‘Deterrence Before the Thermonuclear Age’, and ‘Massive Retaliation’.¹¹

The position of some journals, *Time* in particular, was that the US was forced to develop nuclear weapons as the Soviet Union was too, and would inevitably attack the West. It is therefore interesting to look at some policy debate from the other side of the Iron Curtain, with Nikolai Luzin’s book *Nuclear Strategy and Common Sense*. Luzin describes the struggle to control nuclear weapons to prevent humankind from destruction. Luzin’s bias is clear from the introduction, when he declares his intent for the book to discuss the Pentagon and NATO nuclear strategy, “and its danger to the world.”¹² On the other hand, the Soviet Union and other socialist countries pursue a “peaceful foreign policy”.¹³ While the bias could be a handicap, Luzin provides a welcome alternative perspective in the policy debate.

The history of nuclear development is another common topic on the subject. In *Brotherhood of the Bomb* Gregg Herken follows the development of nuclear weapons from their inception to the end of the Eisenhower administration through the lives of scientists. His book is a bibliographical account of the physicists who created the atomic and hydrogen bombs, focusing on Robert Oppenheimer, Ernest Lawrence, and Edward Teller. Herken discusses how the physicists came to terms with their developments, and the rivalries within the scientific community which led to Oppenheimer’s loyalty hearing.

¹¹ The section entitled ‘Deterrence Before the Thermonuclear Age’ has inaccurate dates, as the thermonuclear age began in November 1952 when the first hydrogen bomb was exploded.

¹² Nikolai Luzin, *Nuclear Strategy and Commons Sense*, English translation ed. (Moscow: Progress Publishers, 1981; reprint, Moscow: Progress Publishers, 1981), p6

¹³ Ibid., p6

He describes the relationship between the two main research centres, Los Alamos and Livermore, as mirroring in microcosm the struggle for nuclear dominance between America and the Soviet Union.¹⁴ It is written chronologically describing each of the three main subject's lives in relation to nuclear development.

From a cultural perspective, the main work specifically on the subject is *By The Bomb's Early Light* by Paul Boyer. This was first published in 1985 and re-published in 1994 with a new introduction. Boyer looks at how American culture was affected by the arrival of nuclear weapons during the period 1945-1950. He states in his introduction that "All the major elements of our contemporary engagement with the nuclear reality took shape literally within days of Hiroshima."¹⁵ I do not I agree with him on that point, as I believe the beginning of the arms race in 1949 did as much if not more to shape our nuclear reality. As stated earlier, this study will aim to show how the events of the first decade of the arms race defined our nuclear consciousness (as Boyer calls our individual nuclear memories).

Boyer divides his book into the predominant themes of the age; the world government movement, the scientist's movement, visions of the atomic age, social and moral implications, and culture. Two sections of the book are particularly relevant to this study; Part Four, 'Anodyne to Terror: Fantasies of a Techno-Atomic Utopia', and Part Seven, 'Culture and Consciousness in the Early Atomic Era.' Part Four deals with visions of the atomic future, which were either apocalyptic or Utopian. Boyer describes it as an 'either/or' attitude: "either civilization would vanish in a cataclysmic holocaust,

¹⁴ Gregg Herken, *Brotherhood of the Bomb*, 1st ed. (New York: Henry Holt and Company, LLC, 2002), p332

¹⁵ Paul Boyer, *By The Bomb's Early Light*, 2nd ed. (Pantheon Books, 1985; reprint, Chapel Hill: The University of North Carolina Press, 1994), pxxi

or the atomic future would be unimaginably bright.”¹⁶ Part Seven deals with the culture of the period, looking at fiction and science fiction.

Boyer provides a model for this study to follow in some respects. His book is currently the only one to take a broad cultural approach to the subject of nuclear weapons. The vast amount of literature on the subject is predominantly policy debate or histories of the bomb. However, his book is a much wider study of the effect of nuclear weapons on society and culture, whereas this study will only cover a small portion of that. Boyer also looks at a slightly earlier time period.

There are other books which take a narrower cultural approach, looking at a specific source. There are many books on nuclear fiction and nuclear films, for example, and these have been useful in helping identify novels from the period. *Cold War Fantasies: Film, Fiction, and Foreign Policy* by Ronnie Lipschutz looks at both film and fiction from the 1950s to the 1990s. The chapters are laid out thematically, looking at different aspects of the Cold War such as nuclear weapons, spies, and Vietnam. The chapter on nuclear weapons has been particularly useful, although he only discusses one book in the time period this study covers – *Red Alert* by Peter Bryant. In his introductory passage to the chapter Lipschutz discusses the two main themes found in fiction and film until the mid-fifties. Either nuclear war would be fought, and the survivors – usually American – would pick up the pieces, or war would be avoided at the last moment.¹⁷ These are themes that I too have discovered in the course of my research.

Allan Winkler provides an interesting mix of policy debate and atomic history with a cultural twist in his book *Life Under A Cloud*. Winkler is focusing on American

¹⁶ Ibid., p125

¹⁷ Ronnie D. Lipschutz, *Cold War Fantasies: Film, Fiction, and Foreign Policy*, 1st ed. (Lanham: Rowman & Littlefield Publishers, Inc., 2001), p81

anxiety about the bomb over a forty year period. His thesis is that public discourse through a triangular conversation involving scientists, policymakers, and commentators has affected nuclear policy decisions. He states that while scientists, novelists, and filmmakers have imaginatively described nuclear holocausts, they have not been able to force a governmental response. Popular appeal has yet to influence the politicians. Winkler believes that only with acute awareness of the political issues can the public affect government policy.¹⁸ Although the book is predominantly a policy debate, Winkler does discuss some cultural aspects of the topic through attitudes to nuclear development.

The most accessible way to look at the social impact of nuclear issues in the fifties is through the media, public opinion polls, and fiction. These are not perfect sources. How much the media reflect public opinion or manipulate it is debateable. However, while they do not reflect every viewpoint, by necessity the media need to be somewhat representative to their target audience, in order to sell their products. I therefore feel that for the purposes of this study they can be regarded as a reasonably accurate barometer of public opinion.

The main primary sources I will use will be journals, Gallup public opinion polls, and novels. I have chosen a broad range of sources from different sectors of society. With these I hope to show the concerns over nuclear issues across the board, and how each sector was dealing with them. Were the readers of *Time* and *Newsweek* concerned with the same issues as the readers of *The Nation* or *Harper's*?

Time and *Newsweek* are popular weekly news journals, making them useful sources as they have to choose the stories from the previous week that they feel are

¹⁸ Allan M. Winkler, *Life Under A Cloud*, 1st ed. (New York: Oxford University Press, 1993), p209

important. What they choose to include, and perhaps more importantly what they leave out indicates their stance on the subject. These two journals are also competitors, and both their similar attributes and their contrasts will provide an added dimension to the study. They will be useful sources because they are intended for the average person to read and therefore stories are presented simply.

The New Republic and *The Nation* are representative of the political/intellectual journals. As there were no right-wing journals published before the mid-fifties, this study will use the two main left-wing journals that were available for the entire period. *The New Republic* was closer to the centre than *The Nation* though, making them quite different. The founding prospectus of *The Nation*, written in 1865, states the aim of the journal is, “to bring to the discussion of political and social questions a really critical spirit...”¹⁹ In contrast to *Time* and *Newsweek*, these three journals are aimed at a more informed audience, possibly one that is politically active.

The current mission statement of *Harper's*, on their website, asserts that, “*Harper's* continues to explore the issues and ideas in politics, science, and the arts that drive our national conversation.”²⁰ Founded in 1850, the editors search the media for “gleaming points of significance”²¹ which the journal presents through its, “fine writing and original thought, and in its acclaimed essays, fiction, and reporting.”²² It is precisely these points that the editors find significant that makes this journal an interesting source for this study. This could be an indication of the impressions of nuclear issues, warfare at the time of the article.

¹⁹ The Nation, "The Nation," [<http://www.thenation.com/about>], 1865.

²⁰ "Harper's," [<http://www.Harpers.org>].

²¹ Ibid.

²² Ibid.

Reader's Digest is another interesting journal because it too chooses which stories are significant, but instead of re-writing them as *Harper's* often does, the *Reader's Digest* mostly abbreviates the original article. In *Condensing the Cold War: Reader's Digest and American Identity*, Joanne Sharp states in her introduction that, "*Reader's Digest* might offer the single most important voice in the creation of popular geopolitics in America in the twentieth century."²³ Her belief is that *Reader's Digest* is able to explain both America's and the reader's role in world affairs.²⁴ It is a widely read and very influential journal, so which stories they find significant is very interesting.

The Gallup public opinion polls are a useful source, in that they can validate the findings from the journals. They need to be treated with a little caution however, as the questions asked are inevitably designed to lead the sample group in a particular direction. This is because the polls are usually funded by the media in order to provide statistics for a particular story. However, this also means that the number of polls dealing with nuclear issues is a useful indicator of concern on these issues.

There are many novels depicting nuclear war. Most deal with the aftermath rather than the event itself. The novels used in this study have been chosen because they deal with the themes found in the journals in the same period. They were also either bestsellers during the period or written by well known authors. These are not necessarily the best written novels, but the most widely read. What people choose to read, and the themes they are exposed to is, I believe, a good indication of society's feelings.

Some atomic novels take the optimistic approach that although half of the country may be wiped out, the American way of life will survive. *Alas, Babylon* by Pat Frank

²³ Joanne P. Sharp, *Condensing the Cold War: Reader's Digest and American Identity*, 1 ed. (Minneapolis: University of Minnesota Press, 2000), pix

²⁴ *Ibid.*, pix

(1958) is an example of this approach. Frank depicts life after a 'limited' nuclear war. While most of the state of Florida has become uninhabitable there are small pockets that survived the attack and are protected from most of the radioactive fallout. Once the shock has worn off, the small community of Fort Repose settles down into a new life marred by supply shortages, lawlessness, and isolation from the rest of the United States. However, the community ultimately wins through to survive and rebuild their lives. Similarly, *Tomorrow* by Philip Wylie (1954) looks at the issue of civil defence, showing how two cities deal with a nuclear attack. One has a comprehensive civil defence programme, the other has none. Despite the horrific attack, both cities survive, though at the cost of thousands of casualties. Wylie's novels are characterised by a certainty that the Soviet Union will attack the US. However, with the right preparation and a few all-American heroes, the US cannot fail.

A second, more pessimistic approach is taken by author Nevil Shute in his bestseller *On The Beach* (1957). Although it was written by a British author and set in Australia it was a top ten bestseller in America in 1957, which is why it is included in this study. The novel depicts the last few months of life on earth after a nuclear war. The focus is on the relationships within a small group of people as they come to terms with the end of their lives. This is the bleakest view of nuclear war, as humankind is completely destroyed by our own folly. Novels depicting the futility of nuclear war also include *Not This August* by C.M. Kornbluth (1955) and *A Canticle for Leibowitz* by Walter M. Miller (1959). Both show how the arms race simply perpetuates itself, leading the world closer and closer to full-scale war.

This study focuses on four main themes that were present in the media throughout the fifties, but are largely ignored in the existing literature on the period – civil defence, radioactive fallout, accidental warfare, and arms control.

Chapter One deals with the issue of civil defence. While there is a large literature on the subject, the 1950s has rarely been looked at. Thomas J. Kerr gives a detailed account of civil defence policies from 1945 through to the early 1980s, but entirely from a political perspective. While he discusses the reactions of Congress to the various proposals and policy changes, he does not discuss the impact this had on the American public.²⁵ How to survive a nuclear attack was a growing concern as the arms race grew more intense. In the early part of the decade the media made frequent calls on the government to establish national policies which would ensure the survival of the American people and at the same time tried to educate people as to what they could do for themselves and their families.

Chapter Two discusses the issue of radioactive fallout. This was a concern which figured prominently in the mid-fifties. Concern over it was brought to international attention by the crew of the Japanese trawler the *Fukuryu Maru* (the *Lucky Dragon*) in March 1954, after they were covered with radioactive ash while fishing near the Marshall Islands during a US hydrogen bomb test. Japanese concerns over fallout from testing in the early 1950s were largely ignored until fallout was discovered on the continental US. Towards the end of the 1950s the US military and the Atomic Energy Commission were publicly declaring their intentions to develop ‘clean’ bombs, which would produce a fraction of the amount of fallout of earlier bombs.

²⁵ Thomas J. Kerr, *Civil Defense in the U.S.: Bandid for a Holocaust?* (Boulder, Colorado: Westview Press, 1983)

Chapter Three deals with accidental warfare. Fear of the potential for accidents to spark an international incident was greatest at the end of the decade; especially after incidents such as Mars Bluff, South Carolina, in 1958, when an unarmed A-bomb was accidentally dropped on a house. If one could be dropped there how could the government assure people that one could not be accidentally dropped on an enemy country, igniting war?

Finally Chapter Four deals with the issue of arms control. The arms race was a growing concern throughout the period, specifically in the intellectual journals. There were calls for a ban on nuclear testing, which became an election issue in the 1956 presidential election. The numerous conferences in Geneva on arms control started out promisingly, but then became stuck over how to effectively police any control and disarmament agreements, which only served to fuel the concern.

These four issues impacted on the lives of the American public throughout the fifties, contradicting the belief that the period was a time of peace and prosperity for all. The journals from the period show that the public were more concerned with these issues than the existing literature has led one to believe.

Chapter One – Civil Defence

“Whether we could get up and fight back depends on whether we have civilian defense.”²⁶

Stuart Symington, director of the National Securities Resources Board, October 1950.

“...the only defense against the A-bomb is not to be there when it goes off.”²⁷

Robert W. Stokely, September 1953

With two hostile powers facing each other during the Cold War, nuclear weapons gave a potentially decisive advantage to the nation which struck first. The American people would never accept a pre-emptive strike coming from a free and democratic country. It was felt, however, that the communists would have no hesitation in striking first, which made the ability to survive a nuclear attack vital. This meant not just saving lives, but saving a way of life. While getting people out of the blast area saved them from immediate danger, thought had to be given as to what to do next. The countryside would be inundated with refugees, who would need re-housing and employment. Industry and the transportation and communications networks disrupted by the blast would need replacing as quickly as possible. The key to achieving all this was civil defence.

The civil defence plans of the federal government of the 1950s were to serve three purposes; survival, soothing fears, and deterrence. Firstly, the plans were aimed at ensuring the survival of as many American citizens as possible. To this end, the federal government encouraged the idea of civilian defence through the media, in particular the *Time-Life* organisation. With the very real possibility of a Soviet attack on multiple locations at once, they wanted to ensure that the American way of life would survive.

²⁶ "Barely Time To Duck," *Time* 56 (16 October 1950), p14

²⁷ "Defending the U.S. Against Atomic Attack; Symposium," *New Republic* 129 (21 September 1953), p10

Secondly, the plans were to calm people's fears of an attack, by reassuring them not only of surviving the initial attack, but of fighting back and regaining the life they had before. Some people were concerned that an attack would push the US back into the Stone Age. Experts, such as Edward Teller, were quoted repudiating that idea. Finally, the third role of civil defence was to act as a deterrent to war in the first place. The belief was that the Soviet Union would see that attacking would be futile, as the American way of life could not be destroyed.

Civil defence plans proposed throughout the period included building shelters, dispersal of both people and industry, and the rapid evacuation of cities. Numerous requests were sent before the House Appropriations Committee for funding these plans. Thousands of people across the US volunteered in their local civil defence organisation. Was it enough? Was the US prepared to face a nuclear attack? For the media the answer was no.

Media reporting on this subject began optimistically in 1949, but grew more and more negative as the decade progressed. While *Time* was supportive of the federal civil defence plans, the Civil Defense Administration, and the other defence organisations involved, the other journals looked at in this study, while they do not ridicule the idea of civil defence in general, are highly critical of the plans proposed throughout the 1950s.

Newsweek was fairly supportive of the federal government initiatives, particularly those coming from the President. Like most of the journals, civil defence was an issue they addressed early on. In November 1949 they were discussing the difficulties of getting a civil defence programme off the ground, because of a difference of opinion in Washington. President Truman was concerned that over emphasising the issue would

cause panic, while Bernard Baruch called for immediate legislation. Russel J. Hopely proposed a plan which fell somewhere in the middle, which called for local civil defence organisations to be created, led by Washington. According to *Newsweek*, Truman shelved the proposal. The journal concluded that the difference of opinion was more likely to stem from political issues, than the merits of each argument. By way of evaluation they pointed to the United Kingdom, which having had the experience of cities being bombed during the Second World War, had already implemented a civil defence programme. The US Congress, on the other hand, seemed indifferent to the idea at that time.²⁸

At the end of 1950 Truman set up the Federal Civil Defence Administration (FCDA) as a temporary organisation while a Bill was sent to Congress to make it permanent. *Newsweek* followed the FCDA Bill with interest. Congress was concerned over the powers the Bill seemed to give to the administrator, who would be able to commandeer property and land for civil defence uses. The Bill also aimed at making the administration a Cabinet level organisation, with a Secretary for Civil Defence. Congress was opposed to this as it would take defence out of the hands of the military. Despite *Newsweek's* opinion that the congressmen were under pressure from their constituents to pass some form of civil defence legislation that session, they did not appear to be in a hurry.²⁹

Physicist Ralph E. Lapp raised an interesting issue which *Newsweek* broached in 1951. Civil defence workers had no experience of a nuclear attack, and therefore did not really know what to plan for. Lapp proposed that the AEC build a model city on one of

²⁸ "Defense Against Atom-Bomb Blitz? None Yet.," *Newsweek* 34 (14 November 1949), p30

²⁹ "No Answers Available," *Newsweek* 36 (16 October 1950), p19; "No Take-to-the-Hills," *Newsweek* 36 (11 December 1950), p25

their test sites, and then destroy it with an atom bomb, with civil defence workers there to see it happen. To help with the costs, companies could be invited to build on the site at their own costs, in order to test their products against an attack, tickets could also be sold to the public to view the test from a few miles away, and the rights to broadcast the event could be sold to television companies.³⁰

This same issue was raised by Pat Frank, in the introduction to his 1959 novel *Alas, Babylon*. Frank declared that he was writing the novel to try and help people understand the effects of a nuclear bomb. He stated that, “[t]o someone who has never felt a bomb, bomb is only a word.”³¹ He too cites the experience of the British during the Second World War, stating that they were better prepared because they had some understanding of what it would be like. Lapp’s proposal was put into effect of a sort, when a test in Nevada was set up in March 1953 to destroy some houses and cars. Civil defence workers were present, along with the press.³² It obviously did not have the affect Lapp thought it would in educating the American public too, as Frank felt the need to write his novel on the subject several years later.

There were some events that both *Newsweek* and *Time* reported on. In October 1950 there was a meeting held in Washington D.C. for mayors and civil defence workers. The meeting was to discuss measures for civil defence with Stuart Symington and James Wadsworth, director of the National Securities Resources Board (NSRB) and acting director of the Office of Civil Defence (OCD) respectively. The OCD was a department of the NSRB, and led the government strategy for civil defence before the FCDA was created. Both articles showed the concerns of these groups over federal support for civil

³⁰ "Atomic Eye Opener," *Newsweek* 38 (23 July 1951), p82

³¹ Pat Frank, *Alas, Babylon*, 3rd ed. (Lippincott, 1959; reprint, New York: Bantam Books, 1988), pv

³² "Bill for CD," *Newsweek* 41 (30 March 1953), p31

defence, in the form of information given on how to prepare for an attack, and more importantly, funding. When the NSRB and OCD did provide them with information it was often confusing. Symington finally admitted that the issue of funding was up to Congress, and could not say how that would go.

Time was the more critical of the two journals in its reporting of this event, printing a facetious comment from Toledo mayor Michael DiSalle to illustrate the frustration felt. DiSalle joked that places like Toledo “might erect large neon signs on its buildings, pointing the way to Cleveland and Detroit.”³³ *Newsweek* on the other hand was not so critical of the federal government, instead laying the blame at the feet of former OCD director Paul J. Larson, whose assumption that the Soviet Union would not attack the US with nuclear weapons within the next two years had caused a delay in developing adequate civil defence plans.

As with the other journals, *The New Republic* showed concern for civil defence early on. In 1950 they felt the problem was one for the whole country, not just the federal government. Civil defence they felt was a city, a state, and a federal problem, and the bickering between the three groups was not helping anyone. Eugene Rabinowitch, in a September 1950 article, discussed in detail the necessity of the US to be able to absorb a nuclear attack. The most important aspect in his mind would be the ability for industry and transportation to recover quickly. Rabinowitch recognised what most people did not want to, that lives were not the most important thing to save. Most discussions on civil defence centre on saving as many people as possible. He also discussed plans for the re-employment of millions of people made homeless and jobless. This is a crucial aspect of civil defence which is simply not discussed later in the period. Saving people from the

³³ "Barely Time To Duck" p14

immediate effects of an attack, such as the initial blast, the fire-storm, and radioactive fallout are the major concerns of the civil defence programmes, but getting people out of the target area is not enough to save them, and this issue is not addressed.

Time's criticism of the Administration lasted only as long as Truman. When Eisenhower was elected president in 1952 the journal became more supportive. In March 1953 they printed a story about the people chosen to broadcast the civil defence instructions over the CONELRAD system in the event of an attack.³⁴ The two men chosen were Arthur Godfrey and Ed Murrow. Godfrey stated the reason they were chosen was because their voices were hard to imitate, but also because people knew when they heard their voices that they could trust them. This kind of story would have been reassuring to people. It must have been comforting to know that in a time of panic there would be calming, well known, voices to tell them what to do.

The first hint of frustration with civil defence was evident by 1953, when *The New Republic* reported on the ever decreasing funding Congress was approving for the FCDA. They printed several articles on how civil defence was a viable option, with proper planning. An article by Henry Parkman, assistant director for non-military defence in the Office of Defense Mobilization, proposed plans for urban development which would assist with civil defence. The title of the article, 'Our Cities Need Not Be Doomed', is an indication not only of the contents of the article, but of opinion at the time. Even before the hydrogen bomb was fully developed the feeling was growing that the major cities could not be saved in the event of a nuclear attack. Parkman argues this

³⁴ CONELRAD stood for Control of Electromagnetic Radiation, and was the radio system for civil defence. In an emergency radio stations would be shut down, so that enemy planes could not use the radio signals to find targets. There were two frequencies on which CONELRAD would be broadcast instead, to provide people with information and instructions.

need not be the case. With proper planning over the next several years major urban areas could be decentralised, without additional costs or inconvenience. All cities are under constant redevelopment; all Parkman asked was that civil defence considerations be taken into consideration. The buildings were going to be built anyway, but they could be located where they would lower the average population density of the city.³⁵

The highly influential novel *Tomorrow*, by Philip Wylie was published in 1954, and was one of the top ten best selling novels of the year. In it Wylie addressed the issue of civil defence. He dedicated the book to:

...the gallant men and women of the Federal Civil Defense Administration and to those other true patriots, the volunteers, who are doing their best to save the sum of things.³⁶

As a special consultant to the FCDA, Wylie worked closely with that organisation for four years in the early 1950s. His strong belief in civil defence is clear throughout the novel.

The setting is the Sister Cities. Two cities, situated next to each other, but with a river dividing them. The river is also the state line. One, Green Prairie, takes pride in its civil defence organisation, the other, River City, takes pride in having no civil defence. River City is the poor relative which usually cannot keep up with Green Prairie. When it came to civil defence they decided not to even waste money trying. Their state has not made it mandatory, so they thumb their noses at the waste of time and money Green Prairie is spending on it. Wylie was attempting to show how civil defence could work, by showing the affect of a nuclear attack on both a prepared and unprepared city.

³⁵ "Defending the U.S. Against Atomic Attack", p14

³⁶ Wylie Philip, *Tomorrow* (New York: Rinehart & Company, Inc., 1954), after title page

Wylie uses four groups of people to represent different sectors of society. The first two groups are families living next door to each other; the Connors and the Baileys. They were both all-American families, but in different ways. The Connors have a good work-ethic, and while are not poor, are not rich either. Henry “Hank” Conner is known to everyone as a thoroughly decent guy, the kind of person to go to in a crisis. He cares about the community, and feels a responsibility towards it. Not only is he an active civil defence worker, but is also a section warden. He is known to everyone and liked by all. Beth Conner is the archetypal ‘apple-pie mom’, supportive wife and loving mother. Beth too is a volunteer with the civil defence team, as an auxiliary nurse. Beth and Hank have three children. The eldest is Charles (Chuck) is a Lieutenant in the Air Force, home on leave for a few days at the start of the novel. Ted Conner is sixteen and volunteers as a radio operator with the civil defence team. He’s very excited to be part of the action, seeing it all as a big adventure. The youngest child, Nora, is old enough to understand what is happening, but too young to participate, leaving her somewhat resentful about the whole thing.

The Bailey’s are almost the exact opposite of the Connors, but at the same time still a typical American family.

To them, as to millions of other American families, not only ‘keeping up’ but ‘getting ahead’ have priority over conscience; honor is a luxury they conceive of as desirable, even ideal, but possible only to those lucky few who somehow have run all the gantlets, crossed all the goals, and bought all the nationally advertised essentials, including airplane trips abroad, summer homes, large annuities and permanent vaults.³⁷

The family is run by the mother Netta whose, “personality was identical with her ambition which had been formed, delineated and defined to the utmost detail by

³⁷ Ibid., p38

American advertising.”³⁸ Her husband Beau, driven by his wife’s ambition, cannot support his family on his wages alone and has a large gambling debt. Only their daughter, Lenore, is above this corruption.

Wylie appears to be making a larger statement about American society with these two families. Beau Bailey worked as chief cashier for the largest bank in the Sister Cities, and was known to several hundred of the most prosperous citizens in the region. The Bailey’s considered themselves important in the community. Hank Connor on the other hand was quite content with being the head of accounting for the second largest hardware store chain in the state. Neither he nor his wife was particularly concerned with money. While the Bailey’s occasionally contributed to charity financially, when it served to further their interests, the Connors contributed a great deal of time and money. Hank belonged to many organisations, and was known to thousands of people. The Connors did not consider themselves an important family. They are Wylie’s idea of all-American heroes; dedicated to the well-being of their community, which they see as the same as the well-being of their family.

Over in River City lives the family of Beth’s sister, Ruth. In River City there is no civil defence organisation, and Wylie uses the Williams family as being typical of those who are against civil defence. Ruth Williams believes that talking about nuclear war causes psychological damage to children. She does not allow talk of atom bombs in her house. The subject is of much debate in the PTA, of which Ruth is an active member.

Ruth appealed to her soldier-nephew. “I can show you the *facts*, in the *Bulletin*! Every time they run off a series of atomic tests anywhere, the kids of the United States show a

³⁸ Ibid., p32

marked rise of nervousness, of nightmares, of delinquency. The Rorschach Tests prove it!”³⁹

Ruth believes peace is achievable with Russia, but that American industry and military do not want it. Wylie shows her arguments to be inconsistent, however. While she has faith in the Russian offer to allow inspectors to check they are not stockpiling nuclear weapons, she is highly critical of Americans who are communists. In her opinion, “[w]hen an American citizen goes Communist, it shows that person is a moral leper and utterly untrustworthy,”⁴⁰ and yet as her nephew points out, she is quite willing to accept the same views from the Kremlin.

The fourth group represented is led by Minerva Sloan, and reflects industry and business opinions, which objected to civil defence on the grounds of cost. Owner of Sloan Mercantile Trust, the bank for which Beau Bailey worked, she also owned numerous factories, railroads, mines, and the *Green Prairie Transcript*. Minerva is not the slightest bit interested in civil defence, until it inconveniences her, and then all she can see is how much it costs her in lost business.

The novel opens with a civil defence drill in Green Prairie one evening, during dinner time. Despite being slightly disorganised, the drill went off quite well. In the centre of the city people abandon their cars to run for shelter, causing a road block for several hours. Minerva Sloan was unfortunate enough to get caught up in this, causing her to demand that the editor of the *Transcript*, which had been pro-civil defence up to that point, to denounce the whole affair. Minerva, like many other people, does not really believe that an attack will happen, and so does not understand this waste of time and money.

³⁹ Ibid., p88

⁴⁰ Ibid., p89

The curious thing is that most of the civil defence volunteers do not believe it will really happen either. This is another of Wylie's points about civil defence, it was not just about defence, it was about community.

To nearly all these people, to nearly all other Civil Defense volunteers, the destruction of Green Prairie had not actually been thinkable. Good will, community spirit, conformity and a readiness to serve were far more responsible for their efforts than any acceptance of the reality of the booklets sent by the Federal Civil Defense Administration from Washington.⁴¹

The volunteers were not just learning what to do in an emergency, they also learnt about their city. Most people never really consider how their town or city works, how it is planned and put together. At civil defence volunteer meetings individuals had been able to share their own special knowledge about their city, enriching the group as a whole. As Wylie shows when the attack finally comes, it does not matter if the volunteers never believed it would happen. In fact, the sense of community that led them to join their local civil defence organisation in the first place is what drives them in the hard hours immediately after the attack. It is not merely important to save lives; they want to save their way of life too.

By 1955 the federal government were educating people by holding national air-raid drills. Operation Alert first took place in June of that year. *Newsweek's* reporting of the event was generally positive. While acknowledging all the errors and faults, including non-participation by some civil defence workers owing to a belief that it was pointless, they preferred to take the approach that there were positive results to the day. Now civil defence organisations knew which areas needed to be worked on.⁴²

⁴¹ Ibid., p80

⁴² "So Much To Be Done," *Newsweek* 45 (27 June 1955), p22

Congressional hearings on civil defence, held in 1956, were discussed in detail by *The New Republic*. The journal took these hearings seriously, even though they felt that no-one else in the media was, mainly due to public apathy on the subject. Five esteemed scientists, who were all experts on nuclear weapons, were subpoenaed to appear before the House Committee on Government Operations. Their conclusions were summed up by one of the group, Dr Merle Turve, a nuclear physicist with the Carnegie Institute. There were seven points in which the US civil defence programme was failing. There was still no early warning system, there was no equipment for measuring radiation after an attack, there was no centralised disaster plan as the federal government handed all responsibility to the states, the current Administration had not asked for any technical studies, and the current FCDA staff, while all being very nice people, did not know what they were doing. In conclusion Turve stated that, “civil defense is our only defense activity based on the proposition that war is not coming.”⁴³

Gallup has very little public opinion polling data on the subject of civil defence. In the eleven year period this study covers they only asked two questions specifically pertaining to civil defence.⁴⁴ This is curious as throughout the period they consistently received an affirmative answer when they asked if people thought the US would be at war within five years, if the US would be attacked, and if hydrogen bombs would be used against them. It would seem logical to take the question to the next step and ask what people thought they would do in the event of an attack. But Gallup was not concerned with these issues, because the media which commissioned the polls were not concerned with them.

⁴³ "Defending the U.S. Against Atomic Attack", p15

⁴⁴ In the same period there were also two polls conducted on the issue of whether shorts should be worn in public. The answer was an emphatic no.

The first question Gallup asked was polled on 14th September 1956. It asked, “Would you approve or disapprove of a plan to require every man and woman to spend an average of one hour a week in civil defense work?” The results showed that 64% of people approved. As the results are broken down further, by level of education, people who went no further than high school or grade school were more in favour of compulsory civil defence work than those who had been to college.⁴⁵ While it is difficult to draw conclusions based on one poll, it is nevertheless interesting that the more educated people felt less need for compulsory action. Gallup did not ask another question specifically about civil defence until 1960 (which is discussed later in the chapter).

In October 1955 E. Larrabee, then editor of *Harper's* magazine had written that, “[o]ne of the nicest things you can say about the American people is that they don’t take civil defense seriously.”⁴⁶ Less than two years later he was proved right, when a false alarm was set off in Schenectady, New York, at 3:30am on the morning of 22 July, 1957. As reported in *Harper's* in November 1957, someone pushed the wrong button and instead of the fire brigade being called out, the civil defence sirens were activated. No drill had been planned, so as far as the more than 100 000 citizens of Schenectady knew it was a real attack. The civil defence organisation should have rolled into action – but it did not. No-one did anything they were supposed to do. They either jammed the police phone lines or stood out in the street trying to discover what was happening, or, as mayor Samuel S. Stratton did, went back to sleep.

Why did they react this way? From childhood we are trained what to do when a fire alarm goes off. In every school and every workplace fire drills are carried out

⁴⁵ Dr George H. Gallup, *The Gallup Poll - Volume Two, 1949-1958* (New York: Random House, 1972), p1445-6

⁴⁶ E. Larrabee, "On Running for Cover," *Harper's* 211 (October 1955), p24

regularly to ensure we all know what to do. When a fire alarm sounds unexpectedly we do not always do exactly what we have trained to do – quickly and calmly leave the building by the nearest exit. We will quite often take a little longer, try and determine if perhaps it is an alarm test, but after a minute or so our training kicks in and we dutifully leave the building and meet at the designated point. This false alarm happened in 1957. The FCDA had been producing pamphlets for years by this point, and more importantly civil defence volunteers in Schenectady had been specifically trained for such an event. It is perhaps understandable that most of the people reacted with panic, but surely the volunteers should have reacted differently. The report is ended with a comment from the local civil defence director, who stated that people's reactions showed awareness of civil defence. Harper's response was that civil defence "works only because everyone ignores it."⁴⁷

The same issue *Harper's* carried an article by Robert Moses, who was head of the Long Island State Park Commission and the New York State Park System, Park Commissioner of New York City, chairman of the Triborough Bridge and Tunnel Authority, a City Construction Co-ordinator, a member of the City Planning Commission, and chairman of the State Power Authority.⁴⁸ Ample qualifications for the article he wrote, discussing how civil defence plans were unworkable in a major city.

Moses' article looked at the two main staples of civil defence – evacuation and bomb shelters. Evacuation of a major city was never a workable plan. Even in the 1950s the volume of traffic on major highways, such as the Southern State Parkway on Long Island, meant that if one car broke down it caused big problems. Moses argued that the

⁴⁷ "False (?) Alarm, Schenectady, N.Y.," *Harper's* 215 (November 1957), p26

⁴⁸ *Ibid.*, p26

highway police know what to do in an emergency, but emergencies happened all day and night.⁴⁹

We do know this much: any thought that you can evacuate a large population in a short time from any large city, even if you have a place to move them to, is so much moonshine. No experienced, responsible official will advocate it. If you don't have responsibility, you can advocate anything.⁵⁰

For Moses this is one of the key problems with civil defence; the people producing the plans did not understand how a city is planned and works, and therefore could not produce realistic plans. The FCDA was irresponsible because it produced plans based on what it thought people wanted to hear, not on what was actually possible.

The same problem exists with bomb shelters. In a city of one million people was it realistic to expect to build enough bomb shelters that everyone could reach within fifteen minutes, as Dr Edward Teller suggested?⁵¹ Moses says no. The building regulations required to ensure that enough shelters were built in cities like New York mean that no construction company could afford to build. Moses cites the case of a man of his acquaintance who was building a new office complex in New York. This was not a greedy man; he simply wanted "to make an honest dollar."⁵² He presented Moses with the calculated costs based on existing building regulations. He then showed him the costs if the amendments for civil defence had been required. The difference was so great, he said, that he would not consider building his complex at all if compelled to provide bomb shelters.

⁴⁹ R. Moses, "Civil Defense Fiasco," *Harper's* 215 (November 1957), p32

⁵⁰ Ibid., p32

⁵¹ "Way To Survival," *Time* 69 (21 January 1957), p19

⁵² "Civil Defense Fiasco", p33

Moses deplored what he called ‘shelter psychology’ and the idea that they were living on borrowed time. Defence should be the responsibility of the military, not the civilians.

...we believe that those who guard our frontiers and the vault above us – who invent the instruments of detection and launch our own ingenious and diabolical weapons of retaliation – will not fail us, and that we may continue to live, work, and hope on the surface and not burrow underground like troglodytes.⁵³

Civil defence was not workable in Moses’ mind, but detection and military defence was. From Moses’ observations this appears to be the viewpoint of Congress as well. The House Committee on Appropriations consistently approved significantly smaller budgets for civil defence than requested. The FCDA was granted \$40 000 000 for 1958, not an insignificant amount of money, but just 22% of the \$180 000 000 they had originally requested.

There is also something quite defeatist about civil defence that Moses objected to. He boldly stated that “[w]e are not going underground. We shall not evacuate and disperse. We shall not change our way of life.”⁵⁴ A key aspect of the Cold War was the direct opposition between the American and Soviet way of life. If civil defence meant altering their way of life then some Americans felt it was not worth it. By restricting the freedom to live however they chose the Russians would win without firing a shot.

The response to Moses’ article was indignation from civil defence organisers. The president of the Southern California Civil Defense and Disaster Association, Benjamin M. Watson, objected that Moses was out of date, and the scenarios he spoke of were no longer the case in civil defence organisations. Watson argues they have made

⁵³ Ibid., p34

⁵⁴ Ibid., p34

steady progress in correcting misconceptions.⁵⁵ He either did not say, or Harper's did not print, exactly which parts of the article were incorrect. Other letters however applauded Moses for showing that public apathy towards civil defence is merely recognition of the fact that it would not work.⁵⁶

A potentially reassuring voice was that of Dr Edward Teller. As a leading scientist in nuclear development, he was known as the father of the hydrogen bomb – a fact *Time* was keen to mention every time they quoted him, despite Teller's polite demurs. Teller confidently stated in January 1957 that the casualties of a nuclear attack need be no greater than in previous, conventional wars – if the nation is prepared, which he believed it could be. Teller believed that bomb shelters were the answer, which “could provide protection, not only against the radiation hazard, but also against the biggest immediate hazard, the fire-storm.”⁵⁷ This is the one of the only references to the fire-storm to be found in journals during this period. *Time* does not explain what Teller means by this term, so it is reasonable to assume that it was a known phenomenon.⁵⁸ It figures prominently in Philip Wylie's 1954 novel *Tomorrow*, which was discussed earlier in this chapter.

While there is a sense of increasing frustration throughout this period, there is still the general feeling that all is not lost. Civil defence could be a workable plan. Frederick Waller did not think this the case in March 1957, however, when he wrote his satirical article ‘None for the Road’ for *The New Republic*. In it he discusses his involvement in helping to write the ‘Joint Plan for Universal Anaesthesia’. However, he had decided

⁵⁵ R. Moses, "Civil Defense Fiasco: Reply," *Harper's* 216 (February 1958), p8

⁵⁶ R. Moses, "Civil Defense Fiasco: Reply," *Harper's* 216 (January 1958), p6

⁵⁷ "Way To Survival", p19

⁵⁸ A firestorm would come immediately after a nuclear explosion. A giant fireball would be created, sucking in air at hurricane speeds.

against the Plan, and was here explaining why. The Plan stated that as trying to survive a nuclear attack was futile; people may as well enjoy their last few moments on earth, so it proposed to get everyone drunk: "Tipsification, leading to euphoria, then complacency, and finally stupefaction are the avowed objects of the Plan."⁵⁹ Under the Plan, bars would be required to stock emergency supplies of whiskey, to be handed out free when the sirens went off. Waller was unhappy with the plan, and though some people may feel he was a killjoy in denying people one last fling he felt he must argue against it.

...such persons are, I fear, defeatists; they assume with the authors of the Plan and with the federal government, which seems to have given up on Civil Defense, that the situation is indeed hopeless; that, as Civil Defense Administrator Val Peterson says, "there is no such thing as a nation being prepared for a thermonuclear war." Hence, they ask, why not grace the inevitable with a free fifth?⁶⁰

This is Waller's point; the federal government appears to have given up by 1957. While they talked of adequate defence being necessary to the survival of the country, that is all they did – talk. There were no practical plans for survival and rebuilding in the event of a nuclear attack.

The *Reader's Digest* and the *Nation* are the only two journals which did not begin to publish articles about civil defence until the mid-1950s. In *Reader's Digest* Paul Jones, editor of *The Philadelphia Bulletin*, wrote a vitriolic article on the proposals for mass evacuation of cities. If there was anything guaranteed to cause chaos and panic, it would be a mass evacuation plan he believed. The problem lay in the government trying to save people, when what they really needed to save was industry and transportation as without them the US could not be rebuilt.

⁵⁹ F. Waller, "None For The Road," *New Republic* 136 (11 March 1957), p20

⁶⁰ *Ibid.*, p20

Officials apparently lack the courage to explain, or perhaps do not themselves understand, that civil defense does not mean saving as many lives as possible, at any cost. It means training a beleaguered population to take maximum cover, while standing by its machines and workshops, its communications and transportation networks, and its vital system of supply.⁶¹

In Jones' opinion mass evacuation was the last thing they needed to do. Not only would it be impractical to have millions of refugees on the roads with nowhere to go, but it would also cripple the country, which is exactly the objective of a bombing raid.⁶² His answer to the problem was bomb shelters. They may have been inadequate, but they would afford some protection from the initial bombing raid, and allow people to get back to work quickly.

The *Reader's Digest* unfortunately does not offer any biographical data about the author. It would be interesting to discover where Jones was during the Second World War. He talks a lot of duty and getting on with things in dire situations. His references to saving industry not lives are made without sentiment. He demands the truth about nuclear weapons and radioactive fallout so that he can make educated decisions on the best way forward. While his article is very negative about civil defence plans, it is at the same positive about the chances of survival. Jones is convinced that individual responsibility will lead to everyone doing his or her duty, and with this fighting spirit they will all survive.

The Nation treats civil defence in a slightly more positive manner. While being critical of the current plans (especially mass evacuation), their articles between 1955 and 1957 do at least regard civil defence in general as a workable objective. Max Freedman, writing in February 1955 discussed the problem the federal government had achieving a

⁶¹ P. Jones, "Nonsense In Civil Defense," *Reader's Digest* 67 (October 1955), p31

⁶² "Plans and Uncertainties," *Newsweek* 36 (18 December 1950), p31

balance between alerting people to the dangers and scaring them.⁶³ This was a major problem for the FCDA. While everyone demanded more information about an atomic attack, it was difficult to present them with many details because no-one really knew what would happen. They then ran the risk of over emphasising the dangers out of a desire to spur people into action. If they emphasised them too much people would not be able to see beyond them, and would then think that defence was futile. While acknowledging that the federal government had not yet achieved this balance, Freedman was not being overly critical. He concluded that civil defence was salvageable, and that planning defects could be changed with swift action.⁶⁴

Gene Marine, writing two years later, took a similar approach. Writing in response to a pamphlet he received from his local civil defence organisation in San Francisco he was immediately critical of their plans for mass evacuation, but he still believed in civil defence. He sums up the problem succinctly:

Assuming an explosion or a deadly radiation or both, there are only two things to be done; either you put something tangible between you and the source of trouble, or you put distance there instead. The questions for civil defense are: How much protection (or distance)? How is it put there? Will people know what they are to do in time to do it?⁶⁵

He states this in response to critics who attempted to debunk civil defence by making it more complicated than it was. As Freedman had said in his article, all the information available about a nuclear attack made defence appear futile, but Marine said it was not so. Yes, people would die, but some people would survive too, and it was for them that civil defence was still valid.

⁶³ M. Freedman, "Washington In Focus," *Nation* 180 (9 April 1955), p299

⁶⁴ *Ibid.*, p300

⁶⁵ G. Marine, "Our Stupid Civil Defense," *Nation* 184 (9 February 1957), p111

The second question polled about civil defence by Gallup concerned bomb shelters. A sample group was asked, in June 1960, “Would you favor or oppose a law that would require each community to build public bomb shelters?” While a majority of 71% would favour such a scheme, when asked pushed further only 21% had previously considered building their own shelters, and only 38% would build them even if they cost under \$500.⁶⁶ It seems that while people liked the idea of bomb shelters in general, they did not intend to build them for themselves. Is this because they were too expensive, or because they were pointless?

When asked in the same poll what they would do to protect themselves and their family in the event of a nuclear attack, most admitted that they would not know what to do, while some thought it would be futile to act as nuclear war would mean the end of life on earth anyway. Only 11% of people asked claimed to have done something to prepare for such an emergency.⁶⁷ The Federal Civil Defense Administration published its first set of civil defence plans in September 1950. Yet a decade later people still did not know what to do in an emergency.

From the media sources and the public opinion poll data it would seem that civil defence was just not important to most Americans during the 1950s. It did not impact on their immediate lives. Despite the feeling that the Soviet Union would attack, and that when they did they would use nuclear weapons, there appeared to be a general apathy towards the idea of any defence other than the military. They still believed that defence spending should be focused on the traditional military – Army, Navy, and Air Force. As Coley Borden points out in *Tomorrow*, the American people had forgotten that “an

⁶⁶ Dr George H. Gallup, *The Gallup Poll - Volume Three, 1959-1971* (New York: Random House, 1972), p1671

⁶⁷ *Ibid.*, p1671

empire called Japan fell to us with never a foot soldier on its main islands.”⁶⁸ Yet it is the military to which Americans looked to protect them against nuclear attack.

The same conclusion is reached again and again with every source. Americans felt that either an attack would not come, or if it did come there was nothing that could be done in advance that would save them. The cost of building bomb shelters was simply not worth it. Not even Congress showed faith in the plans, failing to take part in any civil defence drills as late as the mid-1950s, and handing out only a small proportion of the money needed to fulfil the plans, on account of them being considered either unworkable or unnecessary.

The government stuck with civil defence, however, because it had to - for two reasons. Firstly, while individuals can be fatalistic, governments cannot. They had no choice but to hope that remaining optimistic in the face of overwhelming odds would make the Soviet Union think that the US had better defences than it did. Secondly, the increasing frustration of the media sources throughout the period shows the clash of ideals between the ‘individual’ and the ‘nation’. To the individual surviving a nuclear attack meant saving lives. This appears to be what the federal government tried to do through the FCDA policies. However, for a nation to survive a nuclear attack individual lives are not important. For survival, the country needed to focus on saving industry, transportation, and communications, as these were the three most important factors in rebuilding the country. While this appears to have been recognised, the federal government seemed to be unwilling to implement any policy which would have acknowledged that people would have to be sacrificed to save the nation.

⁶⁸ Wylie, *Tomorrow*, p133

While attempting to save the American way of life was at least more achievable than attempting to save all American lives, was either policy realistic? The media sources continually complained about the lack of workable plan for survival, but fail to address the issue of whether a workable plan was ever realistic. Maybe, as Coley Borden says in *Tomorrow*, humans are simply incapable of comprehending the extinction of our species without going insane.⁶⁹

The existing literature on civil defence has also failed to look at whether the American public thought the civil defence policies were realistic. Guy Oakes, in *The Imaginary War: Civil Defense and American Cold War Culture* states that the federal civil defence programmes of the period “represented an institutional means of solving the problem of national morale and securing the moral underpinnings of nuclear deterrence.”⁷⁰ It does appear that it was the federal government’s intention to ease people’s fears with their civil defence policies, but Oakes does not address the issue of how people responded to it. From the journals and opinion polls it seems clear that after a show of concern at the beginning of the decade the American public became apathetic about the subject. As the decade wore on and the Soviet Union did not attack more an immediate concern came arose to occupy their minds – radioactive fallout.

⁶⁹ Ibid., p122

⁷⁰ Guy Oakes, *The Imaginary War: Civil Defense and American Cold War Culture* (New York: Oxford University Press, 1994), p32

Chapter Two – Radioactive Fallout

“If you believe in the inevitability of a third world war, you should become acquainted with the names of these isotopes, whose radiation may someday kill you – Strontium-89, Yttrium-91, Zirconium-95, Niobium-95, Ruthenium-103, Iodine-131, Barium-140, Lanthanum-140, Cerium-141, Praseodymium-143, Praseodymium-144, and Neodymium-147.”⁷¹

Hans Thirring, October 1955

In March, 1954, the *Fukuryu Maru* (the *Lucky Dragon*), a Japanese fishing trawler, and its twenty-three man crew were covered by radioactive coral dust which blew over the trawler, and were consequently the means by which the world discovered the existence of the hydrogen bomb. While rumours abounded of its existence, it was not officially confirmed by the AEC until the publicity surrounding the incident forced them to make a statement. In January that year the trawler had set out to sea to fish for tuna, which brought a good price back home in Japan. Their search for the fish had led them to the Marshall Islands. On 1st March they were 85 miles away from Bikini Atoll, just outside the exclusion zone the US had set up in order to conduct their nuclear tests. Around 4am fisherman Shinzo Suzuki saw the sun rise in the west. Six minutes later the ship was rocked as the sound wave hit them. They were unsure at first what had happened, but some thought it may have been a *pika-don* – an atom bomb.⁷² The fishermen were concerned that the US authorities would be in the area, whom they were scared of, and decided to pull in their lines and leave as quickly as possible. About two hours after the blast, dust began to fall on the ship. It lasted for about four hours, coating the fishermen as they worked on deck, and blowing into all the nooks and crannies of the ship. By the time they arrived back in port two weeks later they were all showing signs

⁷¹ H. Thirring, "Noiseless Weapon," *Harper's* 211 (October 1955), p44

⁷² The term *pika-don* was coined after Hiroshima. It is a combination of the Japanese words for thunder and flash. Ralph E. Lapp, *Voyage of the Lucky Dragon* (Middlesex: Penguin Books Ltd., 1957), p34

of radiation sickness, which was eventually diagnosed a few days later by doctors in Tokyo. The news raced around the world, but how did the US media react?

Before 1954 there were very few articles in the media concerning radioactivity, and even fewer discussing the dangers of radioactive fallout. There is a simple reason for this – radioactive fallout as we know it did not exist. One of the biggest differences between the atom and hydrogen bombs, apart from the destructive capability of the initial blast, is that hydrogen bombs have much bigger fireballs, which combine radioactive elements with dust forced into the air by the blast. These particles then obey the laws of gravity, and find their way back down to earth. When the US first exploded a hydrogen bomb in November 1952, during the Ivy Mike tests on Eniwetok Atoll, they did not report finding any dust settling on nearby islands. However, as they realised when they exploded a second hydrogen bomb on 1st March, 1954, the Ivy Mike test had been a misfire. The first test also may not have been with an actual bomb. Reports in *The Nation* in April 1958 suggested that the device used was not portable, and used liquid hydrogen which needed be kept refrigerated (the real hydrogen bombs used a solid form hydrogen). The AEC were still developing the fusion process at the time. They knew the theory, and were using the Ivy Mike tests to determine if it were possible to bring the hydrogen to a high enough temperature for it to explode.⁷³

Early articles discussing radiation focus mainly on the affects of radiation to the human body, from either atomic attack or accidental exposure in a laboratory. In 1949 *Newsweek* reported on the five atomic scientists who had developed cataracts during their work to develop the atom bomb. They were expected to make a good recovery after

⁷³ "In Wandering Mazes Lost," *Nation* 186 (19 April 1958)

surgery to remove the cataracts.⁷⁴ They also reported on the Navy's proposals for a 'skin bank' in 1950, in which live skin could be kept for future use. In an atomic attack the majority of the injured are burn victims, and skin grafts are urgently needed.⁷⁵

In a prophetic report, considering the fate of the *Lucky Dragon* four years later, *Time*, in August 1950, discussed an article by Dr Louis N. Ridenour which appeared in the *Bulletin of Atomic Scientists*. Ridenour was discussing the possibilities for radiological warfare, in particular 'death sand'. He believed that just one ton of sand mixed with radioactive waste, if evenly spread out, would be enough to turn Manhattan into a ghost town. He concluded that, "the official silence on radiological warfare probably is expressive of [military secrecy] rather than disinterest."⁷⁶ As the *Lucky Dragon* incident proved, the right radioactive isotopes, this time mixed with coral dust, could continue to injure people long after the initial contact with the dust.

Radiological warfare research is again hinted at in February 1953, when *Time* reported on AEC efforts to monitor dust clouds from their Nevada test sites. While on the surface this was a fairly reassuring article, showing how the AEC had been carefully monitoring the radioactive dust clouds as they have drifted across the country, and how they did not allow tests to go ahead unless the weather conditions are just right, so that the radioactive elements dissipated into the atmosphere rather than fell to the ground, there are two comments that are slightly unnerving. Firstly, they stated that "[a]ccording to the AEC, no dangerous 'fall-out' of radioactive dust has occurred outside the test area."⁷⁷ This is an interesting statement as it implies that radioactive dust *had* fallen

⁷⁴ "Atomic Eye Injury," *Newsweek* 34 (12 December 1949)

⁷⁵ "In the Event...," *Newsweek* 35 (27 March 1950)

⁷⁶ "Death Sand; Radioactive Poisons," *Time* 56 (7 August 1950)

⁷⁷ "Hot Stuff; Radioactive Dust," *Time* 61 (2 February 1953)

outside the test area, but that the AEC did not consider the dosage to be dangerous. At this point in nuclear history scientists were yet to firmly establish what a dangerous level of radioactivity was. It was known that 300-700 roentgens was a fatal dose, depending on the individual, and the radioactive dust would not have been anywhere near this level. However, studies undertaken with fruit flies in the 1920s showed that the smallest changes in the level of background radiation affected the mutation rate of genes.⁷⁸ This makes the AEC statement a little less comforting than at first glance. Secondly, *Time*, in support of the AEC, discusses how scientists have learnt much about wind patterns and drifting air masses from monitoring the radioactive dust clouds. *Time* believes this information will be useful in war, as the clouds may be 'theirs' and not 'ours'.⁷⁹

As soon as they had developed the atom bomb, American scientists had been trying to find a way to counteract its effects on the human body. After Hiroshima and Nagasaki scientists all around the world began working on this problem too. American scientists had discovered that the biggest cause of death in patients with radiation sickness is infection, as *Newsweek* reported in May 1953. The radiation not only breaks down bone marrow and white blood cells, affecting the body's ability to fight infection, but also breaks down tissue in the alimentary canal, releasing potentially harmful bacteria into the blood stream. Scientists had been experimenting on mice to see if antibiotics would work, but at the time the article was written had not achieved any conclusive results. Although they could not give a positive answer, this was still a reassuring article. It told the American public that the problems were known to scientists, and they were working on resolving them.

⁷⁸ P.G. 'Espinasse, "Biology and the Bomb," *Nation* 180 (25 June 1955), p580

⁷⁹ "Hot Stuff"

News of the *Lucky Dragon* reached the weekly journals by the end of March, 1954. *Time* reported very little on the incident at the time, just one article on 29th March, in which they said that the repercussions of the blast on 1st March were still being felt around the world. They reported that the *Lucky Dragon*⁸⁰ was 71 miles away from Bikini (according to Ralph Lapp the crew said they were 85 miles away), but well outside the announced danger area. Other than picking up on the term 'ashes of death', as the Japanese press had dubbed the dust that fell on the trawler, the report is relatively free of emotion. There seemed to be little concern for the fate of the fishermen.

Newsweek's reporting of the *Lucky Dragon* incident is more comprehensive, and rife with prejudice towards the Japanese. Their initial report on 29th March, two weeks after the story broke in the Japanese press, describes the 'near-panic' that followed the ship's return to port, when in fact it took several days for the truth to emerge. There was panic over the 'crying fish' (the radioactive fish), which is understandable under the circumstances; the *Newsweek* report, however, made it sound as if people had taken one look at the fishermen as they returned to port, and fled. They also carried quotes from Dr John Morton, chief of the AEC's Atomic Bomb Casualty Commission (ABCC), saying that the fishermen would "recover completely in about one month."⁸¹ What *Newsweek* does not mention is that Dr John Morton had only seen two of the fishermen by that point, and had not fully examined them himself.

The remaining articles published in *Newsweek* in the spring of 1954 are all slightly critical of the Japanese in some way, as if trying to shift the focus away from anything the US may have done wrong. Firstly they wrote of how the Japanese were

⁸⁰ *Time* refers to the trawler as the *Fortunate Dragon*, however, as all other references to it in English language journals call it the *Lucky Dragon* I have stuck with this translation to avoid confusion.

⁸¹ "Panic After Sunrise," *Newsweek* (29 March 1954)

demanding more compensation for loss of industry if the US should continue testing in prime fishing waters.⁸² Next, they discussed how US doctor's offers of help were refused by the Japanese doctors who were "both proud and suspicious."⁸³ They declined to mention that it was illegal for the US doctors to treat the patients, they could only offer advice. When reporting on the fishing boats that were still bringing in radioactive fish, they somehow made it sound as if it were the fishermen's fault. One boat had been 780 miles away while, "[t]wo more, *reportedly*, had been outside the enlarged, 450-mile-radius danger area at the time of the March 26 explosion."⁸⁴ (emphasis added)

Newsweek's use of the word 'reportedly' implies that they did not necessarily believe that information, and was a slur against the fishermen. This is perhaps not unexpected from a journal from another country, but as their country had just inflicted radiation damage on the fishermen's country, affecting many thousands of people, it was unnecessary.

Both the *Nation* and the *New Republic* reported on the *Lucky Dragon* (although with the *New Republic* not until November 1954), but both looked at the wider implications of the incident – the superbomb. In the 27th March edition, the *Nation* talked of the unpredictable force of the blast, which had surprised the US authorities. According to this report, though this has not appeared elsewhere, some Japanese found out about the potential radioactivity of their fish via US radio broadcasts to US military personnel, warning them not to eat fish. For the wider picture they turned back to Washington, and the 24th March statements by Eisenhower and Dulles. Both talked of the policy of 'massive retaliation', and of bigger blasts to come in the April test series. The *Lucky*

⁸² "Money Isn't Enough," *Newsweek* (12 April 1954)

⁸³ "Making The Jitters Pay," *Newsweek* (19 April 1954)

⁸⁴ Ibid.

Dragon was swept under the carpet by both the Eisenhower administration and the *Nation* as they discussed the bigger issue of nuclear testing.⁸⁵

The *New Republic* used the incident as an example of the real danger of the superbomb – not the blast but the fallout. They believed it was only popular reaction to the incident that forced the AEC to make a statement about the test, confirming they had exploded a hydrogen bomb. Even then the AEC tried to hide, by announcing that the *Lucky Dragon* must have been well inside the danger area. The fishermen's illnesses Lewis Strauss, Chairman of the AEC, claimed were caused by chemical burns from the blast. The *New Republic* disagreed, stating that it has been firmly established that the ship was hit by radioactive fallout (though they themselves offered no proof of this). Although the article was written seven months after Strauss had made his statement, he had at that time not backed down. In fact over a year after the incident he was still insisting the men had received chemical burns.⁸⁶

When the public were asked by Gallup, in a poll published on 6th April 1955, whether they knew what the term 'fall-out' meant the majority did not know. Only 17% answered correctly. Some people gave an incorrect answer, but most simply answered that they did not know.⁸⁷ This poll was taken just a year after the *Lucky Dragon*, but the publicity the ship had received in the US was obviously not enough to establish the term in the consciousness of the American public.

Harper's did not seem to be overly concerned with radioactive contamination or fallout until late 1955, when they published an article by Hans Thirring. Despite the

⁸⁵ "Brilliant Sunrise," *Nation* 178 (27 March 1954)

⁸⁶ Lapp, p121

⁸⁷ Dr George H. Gallup, *The Gallup Poll - Volume Two, 1949-1958* (New York: Random House, 1972) p1322

Lucky Dragon incident eighteen months earlier, he did not discuss radioactive fallout. Thirring was more concerned with how the radioactive waste produced by nuclear power plants could be combined with sand to form 'death dust'. He tried throughout the article to be responsible and avoid instilling fear into the readers. He pointed out all the good things that radiation, in the proper dosage, could do for mankind, and stressed that the dosage you would receive at the dentist's would in no way endanger you. However, his article seems behind the times. *Time* after all had been talking about 'death sand' since 1950, and even though the *Lucky Dragon* incident had proved the theory was solid, Thirring did not mention it.⁸⁸

Also in 1955, an article was published in the *Reader's Digest*, which aimed to dispel people's fears about radioactive fallout. Originally published in *U.S. News & World Report*, on 25th March 1955, the *Reader's Digest* condensed it for their June edition. The article consisted of series of fears raised by the public about fallout, which were then debunked using official information from the AEC. For example, after discussing the infinitesimal amount of fallout that resulted from the 'Big Shot' atomic explosion set off in Nevada on 7th March that year, the question was asked, "[s]uppose this fall-out were repeated day after day. Wouldn't it build up a dangerous amount of exposure over a period of time?"⁸⁹ The answer came straight from the AEC: "under current restrictions, there is no danger of build-up from A-bomb tests in the United States."⁹⁰ This article was about reassuring the American public that they would not be harmed by the nuclear tests in Nevada. The *Reader's Digest* article made it clear that only

⁸⁸ "Noiseless weapon"

⁸⁹ "Facts About a-Bomb Fallout," *Reader's Digest* 66 (June 1955), p23

⁹⁰ *Ibid.*, p23

A-bombs were tested in the US, and that H-bombs would not be tested there. They closed with the following statement:

It all adds up to this: Whereas fall-out from big bombs in wartime might become highly dangerous there is no significant evidence that fall-out from U.S. atomic tests now being carried out will be hazardous either to people now or to future generations. The scare stories are without basis in fact.⁹¹

It was a bold statement, but given the AEC's limited knowledge of the effects of radiation at that time they were not necessarily being untruthful, although they could maybe be accused of ignorance. This article, however, was also about damage limitation. Incidents like the *Lucky Dragon* had people wondering about the tests in their own back yard. If the AEC wanted to continue testing it had to convince the public that they were safe.

The *Reader's Digest* article was in part a response to articles like the one by Ralph Lapp featured in the *New Republic* on 14th February that year, in which he quite clearly showed the danger of fallout from H-bomb tests. In the article Lapp explained why fallout was becoming a problem, and it was all because of the super bomb. When an H-bomb is exploded the fireball produced is much bigger than that of an A-bomb, between three and four miles in diameter. Unless it is a very high air burst the fireball will touch the ground, sucking up dust and debris from the surface. The heavier debris immediately falls back to earth, but the lighter particles are drawn into the heart of the fireball, and become coated in radioactive elements. They are eventually thrown out at a high altitude, and drift downwind. While the power of the super bomb means that these radioactive particles are thrown much higher into the stratosphere, getting trapped there

⁹¹ Ibid., p24

and taking much longer to fall to earth than particles from A-bomb explosions, the radioactive elements used in H-bombs have much longer half-lives.⁹²

The half-life of a radioactive element is a measure of its intensity. If an element has a half-life of one day, for example, on the second day after the explosion it will be half as potent as it was the day before, a quarter as potent on the third day, and so on.

Lapp labelled the total dose a radioactive element produces as the eternity dose.

About one-half of the eternity dose of radioactivity is delivered in the first day – the time of maximum danger from fall-out. Although the intensity then drops sharply, it does not drop to zero. At 50 years, seven and one-half percent of the eternity dose remains.⁹³

The most dangerous time to be exposed is obviously the day of the explosion, but even though the level of radiation would decrease every day afterwards, because of the longevity of the radioactive elements used in the H-bomb, the area would still be contaminated for many years to come.

By 1957 the American public had become more aware of the meaning of ‘fall-out’, as a Gallup Poll dated 19th May shows. The sample group were asked if they thought there was a real danger of fallout from the testing of H-bombs and A-bombs. Unlike the poll in April 1955, only 20% could not give an answer this time. More than 50% of the sample group felt there was a real danger. The American public were beginning to take notice of fallout, thanks in part to two books published that year, that were to alert the public to the dangers of radioactive fallout – *Voyage of the Lucky Dragon* by Ralph E. Lapp, and the novel *On The Beach* by Nevil Shute.

⁹² R.E. Lapp, "Radioactive Fallout," *New Republic* 132 (14 February 1955), p8

⁹³ *Ibid.*, p9

Physicist Lapp became intrigued by the story of the twenty-three fishermen after he was asked to edit the September 1954 issue of the *Bulletin of the Atomic Scientists*. At the time Lapp was concerned with civil defence, but editing the journal brought him directly to the problem of fallout, which led him to the *Lucky Dragon*. This was not a subject he took on lightly, he spent the next two years trying to understand the issues involved with fallout before travelling to Japan, publishing articles on them in the process.

Lapp travelled to Japan in 1956 and set about interviewing the fishermen, their families, their doctors, the scientists, and everyone else involved in the incident – at least from the Japanese side. In his acknowledgements Lapp briefly mentions the US State Department, but it appears that he spent most of his time with the Japanese. Two issues that Lapp highlighted were that the fishermen were afraid of the US authorities, and this fear influenced their decisions and actions at first. Secondly, the US media did not treat the situation as seriously as the Japanese media did, leading to misunderstandings and increased tension between the two countries.

The fishermen's fear of the US authorities seems reasonable considering the recent histories of the two countries; particularly where atomic explosions are concerned. The fishermen kept a lookout for US airplanes as they pulled in their lines, as they had all heard the story of the mysterious disappearance of a fishing boat near the Marshall Islands in 1952.

The chief engineer had been the famous fisherman-poet Masuda, so the mysterious vanishing of the boat in fair weather had caused much concern among the fishermen. It was rumoured that U.S. guns had sunk it and left not a trace.

The crew did not doubt that if American authorities found the *Lucky Dragon* they would blow it out of the water.⁹⁴

The disappearance of a boat in fair weather is always of concern to fishermen, but suspicion of the US authorities added to their disquiet. As the US cordoned off the area around the Marshall Islands while conducting their tests, and classified everything that happened inside the area as a secret under national security, nobody really knew what was happening. It seemed plausible to the fishermen that the US would sink a small fishing boat that strayed into the area, in order to protect their atomic secrets, especially in the light of the McCarythist paranoia about espionage in the US in the early 1950s.

Their fears did not dissipate even when the fishermen realised how sick they really were. Despite being advised by all their doctors to relocate to the Tokyo hospitals where they could receive better treatment, the men were reluctant to go. Why? Because they were to be flown there in a US military plane, “and they had heard wild rumours that they would be flown away to some military base.”⁹⁵ As Lapp states, these young men were simple fishermen who had spent their lives either in small fishing villages or at sea. There was an ingrained suspicion of authority in general. As they boarded the plane, after agreeing to move hospitals, friends and well-wishers who had gone to see them off were still concerned that the men would disappear.

For the Japanese, Lapp felt, the incident was in the nature of a second Hiroshima. The general opinion of the US media was that the Japanese were overreacting, and becoming unnecessarily hysterical about it. Lapp’s opinion is certainly born out by *Newsweek* as has been shown above. As the editor of the *Yomiuri* newspaper commented, the Japanese press had tried to be moderate, but foreigners simply did not

⁹⁴ Lapp, p38

⁹⁵ Ibid., p111

understand how important fish are to the Japanese diet: “The accident was surely disagreeable information to the Americans, but it was a matter of life or death for the Japanese people. We should attach great importance to the incident of the *Lucky Dragon*.”⁹⁶ *Newsweek* instead played down the importance, focusing on how some Japanese businesses were actually making money out of the incident. They reported on a hat company that was advertising their product as a way to keep radioactive dust off your head.⁹⁷

Lapp made an effort to dramatise the story, focusing on the fishermen themselves and describing in detail their personalities and their emotions as they coped with the unknown. This was not the story of an event of scientific interest, or a story about bomb tests; this was a story about human beings. The fishermen were struggling to cope with a potentially fatal illness, which even if they survived could maim them for life. Even though Japanese doctors had ample experience of dealing with radiation sickness, they had not seen anything like this before. The little they did know about the men’s condition they told to the media first, leaving the fishermen to find out whether the doctors thought they were going to live or die from the television. While he is careful not to directly blame the US for the incident, as they did accept responsibility for it and attempted to help with the treatment as well as give compensation, Lapp is critical of one thing the US did, or rather did not do. The US refused to tell the Japanese doctors and scientists which radioactive compounds were in the dust. American personnel were specifically asked three times. The first was a US doctor, who probably did not know. The second was a US Army officer, who may or not have known, but would not have

⁹⁶ Ibid., p110

⁹⁷ “Making The Jitters Pay”

told if he did because of national security. The third person asked was Dr Merrill Eisenbud of the AEC, who definitely knew, but refused to say.⁹⁸ The Japanese scientist who finally uncovered the secret was Dr Kimura, a radio-chemist. He discovered that the dust contained uranium-237, which is a by-product of a hydrogen bomb reaction. As Dr Kimura was the first scientist who originally discovered uranium-237, Lapp felt the US refusal to admit what was in the dust was pointless; they must have surely known that Dr Kimura would have quickly been able to identify the element.

One of the fishermen, Aikicki Kuboyama, unfortunately died as a result of his exposure to the radiation. His widow was compensated by the US government, with a cheque for one million yen. With the lack of sensitivity they had shown throughout the incident, *Newsweek* pointed out that this was far more than the Japanese government pays out to the families of men killed while at work.⁹⁹ The other twenty-two fishermen were more fortunate, and survived their ordeal. Lapp interviewed several of them for his book, and in the epilogue described their lives as they were then, three years after the incident. Despite the high dosage of radiation causing sterility in the men immediately after the blast, at least two of them had married and fathered children. They were moving on with their lives, away from the sea.¹⁰⁰ By ending the book on this happy note, Lapp once again emphasised the human aspect of the story.

Lapp's book was serialised, in three parts, in *Harper's* in early 1958. It was less emotional than the book, focusing on the incident and the implications for the world, rather than the lives of the fishermen. The fishermen themselves seem almost unimportant to the story. The epilogue concerning their lives after their release from

⁹⁸ Lapp, p133

⁹⁹ "Atomic Fisherman," *Newsweek* 44 (4 October 1954)

¹⁰⁰ Lapp, p166-76

hospital was missed out entirely, leaving the reader in the dark as to their ultimate fate.¹⁰¹

The book was condensed by Lapp himself, but the *Harper's* readership was either a different audience from those whom he expected would read the book, or he was trying to send a different message. Curiously the *Reader's Digest* version of the book, which it published as a single article in May 1958, was a much more emotional version. They chose to focus on the fishermen, introducing it as a "moving chronicle of a tiny Japanese fishing vessel..."¹⁰² Although the *Reader's Digest* did state that the incident had implications for everybody, by focusing on the fishermen they were downplaying this. Their version seems more of a personal tale.

Fallout affected the fishermen, but would it really affect anyone else? In Nevil Shute's 1957 novel it does. *On The Beach* is possibly the bleakest view of an atomic future that has ever been written. Centring on a small group of friends in southern Australia, the novel depicts the end of the world. Lieutenant Commander Peter Holmes of the Royal Australian Navy is assigned to the U.S.S. *Scorpion*, a nuclear submarine, as a liaison officer. The submarine was one of eight ships of the US Navy, which arrived in Australia after the nuclear war of 1961. As all the oil comes from the northern hemisphere the nuclear submarine is the only ship in the combined US and Australian fleets capable of sailing, as its fuel can be made in Australia. The captain of the ship, Commander Dwight Towers, and Peter Holmes strike up a friendship. The American is introduced to the Holmes family (wife Mary, and baby daughter Jennifer), and their friend Moira Davidson. A cousin of Moira's, John Osborne, is also assigned to the

¹⁰¹ R.E Lapp, "Voyage of the Lucky Dragon," *Harper's* 216 (January 1958), R.E. Lapp, "Voyage of the Lucky Dragon," *Harper's* 216 (February 1958),

¹⁰² R.E. Lapp, "Voyage of the Lucky Dragon," *Reader's Digest* 72 (May 1958), p114

Scorpion as a civilian scientific officer. The five adults form a strong bond in the last few months of their lives.

Shute opens the novel with a quote from T.S. Elliot, which aptly describes the end of the world as Shute sees it:

In this last of meeting places
We grope together
And avoid speech
Gathered on this beach of the tumid river...
This is the way the world ends
This is the way the world ends
This is the way the world ends
*Not with a bang but a whimper.*¹⁰³ (original emphasis)

The end of the world, though caused by war, was not going to happen with a big bang, but through a slow death by radiation poisoning. The novel is set in 1963, far enough into the future that people would feel that it was not inevitable, but close enough that they would worry about it. The war that shrouded the earth in a blanket of radioactivity is over. Radioactive dust from the northern hemisphere is slowly drifting down to the south. Progress of the contamination is followed via the radio, as one by one Melbourne loses contact with towns and cities to the north of it. In the end life on earth is slowly snuffed out. As the crew of the *Scorpion* discovered on an exploratory voyage to northern Australia.

They had stayed in the river off the wharves [at Cairns] for a couple of hours, hailing through the loud hailer at its maximum volume in tones that must have sounded all over the town. Nothing happened, for the whole town was asleep.¹⁰⁴

¹⁰³ Nevil Shute, *On The Beach* (New York: William Morrow and Company, 1957), p5

¹⁰⁴ *Ibid.*, p86-7

The town itself looked exactly as it should. There was no war damage, as it had not been anyway near any fighting. The deadly dust had silently made its way over the area on the wind, and turned Cairns into a ghost town.

Shute's emphasis throughout the novel is on his main characters; how they cope with the inevitability of their own deaths, and the deaths of their loved ones. But he also makes some interesting comments on nuclear warfare. The first is that nations cannot use nuclear weapons for a limited war, nuclear wars simply move too quickly. Nuclear weapons can only be used as a last resort; they are an all or nothing option. The war that killed the planet was started not by one of the major political players, but by a small country - Albania. The war snowballed when Egypt bombed London and Washington, in Russian bombers, killing all the statesmen, causing the British and US military to bomb Russia. Once all the major cities had been destroyed the war came down to junior officers, who had not been trained for this type of situation, so they did what they had been trained to do – destroy the enemy. Nobody knew for sure how many bombs had been dropped, but they estimated over four thousand seven hundred, the majority of which were hydrogen bombs. Shute does not blame the military leaders for the mistakes they made; they did what they had been trained to do. The military is there to fight the wars, not start or stop them. Those jobs belong to the statesmen, but when the statesmen are all killed there is no one left for diplomatic negotiations.¹⁰⁵

Another point Shute makes is that nuclear war cannot be kept between two or three nations; at least not when hydrogen bombs are involved. The *Scorpion's* American crew are not always welcome on shore. There is tension between the crew from the

¹⁰⁵ Ibid., p89-96

northern hemisphere and their southern hemisphere hosts. Not a single bomb was dropped in the southern hemisphere, and yet they had to die too. As Moira says:

It's not fair. No one in the Southern Hemisphere ever dropped a bomb, a hydrogen bomb or a cobalt bomb or any other sort of bomb. We had nothing to do with it. Why should we have to die because other countries nine or ten thousand miles away from us wanted to have a war? It's so bloody unfair.¹⁰⁶

Not only would a nuclear war snowball because it moves so quickly, but its effects would be global. As Japanese scientists proved again and again throughout the 1950s, radioactive dust can travel all across the globe, switching between both the north and southern hemispheres.

Shute does not offer an anti-war or anti-military message however. As stated above, he does not blame the military for the war spiralling out of control. They simply reacted to the situation as best they could. The only solution to the problem of nuclear warfare Shute offers is education. As Peter and Mary are dealing with their radiation sickness, and the reality that they must end the life of their baby daughter, Mary wonders whether it could have been stopped. Peter thought that maybe it could, if people had been educated enough, via the media:

You could have done something with newspapers. We didn't do it. No nation did, because we were all too silly. We liked our newspapers with pictures of beach girls and headlines about cases of indecent assault, and no government was wise enough to stop us having them that way. But something might have been done with newspapers, if we'd been wise enough.¹⁰⁷

The media did not take Shute's hint in the 1950s. Despite everything Shute and Lapp had written about the dangers of radioactive fallout US journals were still not particularly concerned about it; because it was not happening in the US.

¹⁰⁶ Ibid., p48

¹⁰⁷ Ibid., p309

One journal sought to debunk Shute's ideas entirely. In October 1960, after the release of the film version of *On The Beach*, the *Reader's Digest* published an article by Stewart Alsop denouncing the novel/film as nonsense. Alsop, along with his brother Joseph, had written extensively about the effects of nuclear weapons. He wrote this article because he was tired of people saying that it was better to give in to Communism than have a nuclear war which would have "everybody killed in the world and nothing left at all, like in *On The Beach*."¹⁰⁸ Alsop states that this simply was not true. He argued that the novel was based on two basic assumptions, and both were false. The first assumption was that there was no protection against radiation. Not true, said Alsop. Moira and Dwight needed only to build a shelter, and stock it with enough food and water to last for two to three week's, and they could have easily survived.

This led to assumption number two, which was that the radiation would last a long time. In the novel, there had been a belief by Australian scientists that the radiation levels in the north would be reducing by that point, more than a year after the war, but the *Scorpion*, on a fact-finding mission to the northwest of the US finds that this is not the case. When Yeoman Swain escapes the sub, as they are approaching his home town, Shute notes that he is not expected to survive for more than week. Alsop was emphatic in his response to this:

This is nonsense, too. The action takes place well over a year after the bombs have stopped falling. Radioactivity dies away very quickly – a vital fact which is virtually disregarded in *On The Beach*, but which could save millions of lives in case of nuclear war.¹⁰⁹

¹⁰⁸ S.J.O. Alsop, "Let's Stop Talking Nonsense About Fallout," *Reader's Digest* 77 (October 1960), p85

¹⁰⁹ Ibid., p86

Alsop admitted that radiation is not pretty. If a nuclear war came it would kill some and injury others, and the rest would be put on front line for survival, but it would not mean the end of the world. But the people were not listening. Shute's novel had sold more than one million copies by that time, was published in fourteen different languages, and was still selling 33 000 copies a month. The film version had been seen by around thirty million people worldwide.¹¹⁰

Who were the public to believe? The *Lucky Dragon* incident had shown that unless it were cleaned up immediately radioactive fallout could still be dangerous for weeks after it had fallen. In Shute's novel over four thousand hydrogen bombs had been exploded, who could say that with that many bombs the radioactivity would not last longer? Alsop stated that maybe one day in the future it could happen, but not then, and probably not in his lifetime. Shute had not set his novel in the present; he had set it in the not-too-distant future. Despite the AEC's and even the Eisenhower administration's efforts to debunk his work,¹¹¹ the people were listening to Nevil Shute.

The way journals presented the facts about radioactive fallout during the 1950s depended on whether they were for or against the AEC. Some, such as the *Reader's Digest*, *Time* and *Newsweek* supported the AEC and always reported the facts as the AEC presented them, whereas the *New Republic* and the *Nation* questioned the AEC reports. The general public did not seem particularly interested in the argument while the problem of fallout appeared to only exist in the Pacific and Japan. After all, it was not falling on them so what did it matter? As the spectre of fallout over the US and the possibility of

¹¹⁰ Ibid., p86

¹¹¹ Allan M. Winkler, *Life Under A Cloud*, 1st ed. (New York: Oxford University Press, 1993), p7

radiation leaks from industrial or military accidents grew, fear took over; people stopped listening to the AEC, and began listening to Nevil Shute and scientists like Ralph Lapp.

Chapter Three – Accidents and Accidental Warfare

“The failure of a handful of vacuum tubes and transistors could determine the fate of our civilization.”¹¹²

Dr W.H. Pickering, March 1958

“Nuclear doom is not one of the inevitables I intend to accept. The inevitable accident or unauthorized nuclear explosion need not mean World War III.”¹¹³

Charles O. Porter, March 1960

Towards the end of the 1950s concern about accidental warfare became apparent.

This concern was split into two different categories of failure: mechanical and human.

Concern for mechanical or technological failure developed as the weapons and bombers did. The less reliant the weapons were on humans the more likely it was for an accident to occur. With the advent of Intercontinental Ballistic Missiles (ICBMs), however, the concern switched to human error or malignant acts. Although during the 1950s, neither of these appeared to concern the media, or the public, as much as radiation or the threat of attack.

Concern with mechanical failures did not appear in the media until the accidents themselves started to happen. In 1956 the *Reader's Digest* printed a sensationally dramatised article entitled ‘I Disarmed The Bomb That Wouldn't Explode’. This was the story of Dr John C. Clark, as told to journalist James Joseph, and how he had disarmed a live atom bomb after it failed to explode during a test at Yucca Flats, Nevada. Dr Clark was a test director for the AEC, and had himself armed the device, or ‘gadget’ as they called it, only a few hours before. To disarm the bomb, however, Dr Clark and two colleagues had to climb the three hundred foot tower and physically disconnect two

¹¹² "A-War by Accident?," *Newsweek* 51 (24 March 1958), p62

¹¹³ C.O. Porter, "Accident or Agression?," *Nation* 190 (5 March 1960), p205

cables from it. Without knowing why the bomb had not exploded, they could not know if it would still trigger.

Theoretically, there was little likelihood of the device atomizing while I worked through the de-triggering procedure. But, just as theoretically, the gadget *should* have exploded.¹¹⁴

To the *Reader's Digest* these men were heroes. They walked knowingly into danger. As Dr Clark states at the end of the article, the three men did not really care why the bomb had not exploded, they were just happy to be alive. But the fact that the bomb had not exploded is precisely why this incident is important. If a loose connection is enough to ensure that the bomb does not explode when it should, is it also enough to trigger the bomb before the test area is cleared of personnel? The *Reader's Digest* did not report on this incident out of concern for safety, however, but as a human interest story.

It was mechanical failure again that led to the dropping of a nuclear bomb on a house in Mars Bluff, South Carolina on 11th March, 1958. Clyde W. Burleson, in his 1978 book on nuclear accidents, describes what happened. A SAC B-47 bomber, number 876, took off from Hunter Air Force base, just outside of Savannah, Georgia. Like bombers on all SAC training missions, it was loaded with a live (though unarmed) nuclear bomb. Its destination was one of four bases in North Africa – it never even made it to the Atlantic Ocean. The B-47 was at 14 000ft when a warning light came on. It was for the electrical bomb-lock circuit. As the navigator/bombardier struggle to manually insert the secondary safety pin, the bomb-lock disabled, causing the bomb to crash through the flimsy bomb-bay doors and fall to the ground.¹¹⁵

¹¹⁴ J. and J.C.Clark (eds) Joseph, "I Disarmed the a-Bomb That Wouldn't Explode," *Reader's Digest* 68 (June 1956), p118

¹¹⁵ Clyde W. Burleson, *The Day The Bomb Fell On America* (Englewood Cliffs, N.J.: Prentice Hall, Inc., 1978), p1-12

Walter 'Bill' Gregg was working in his garage behind his house, when heard the noise of the bomb falling to earth. The shock wave hit first, destroying the house before the blast even came. Buildings were damaged up to half a mile away, and a large crater had been carved into the Gregg property (leading Gregg to later joke that he no longer need to dig the swimming pool he and his wife had been planning). Miraculously, no-one was seriously injured. The nuclear component of the bomb was locked in safety mode, and so did not explode. The chemical trigger however did explode, spreading plutonium over the area. The Air Force were on the scene within hours, having been alerted by bomber 876's crew, who had aborted their mission and returned to base in Georgia. A radiological crew decontaminated the area, while a colonel was sent to the hospital to ensure the Gregg family were okay. They also launched an immediate investigation into the incident. The Gregg family were compensated for their house, and were able to rebuild on the fully decontaminated property.¹¹⁶

The story was widely reported in the media. Both *Time* and *Newsweek* carried reports of it in their 24th March editions. Both journals treated the story in much the same way. They first reported the basic details; the bomb accidentally dropped through mechanical/electronic error, hit a house in the small community of Mars Bluff, just east of Florence, South Carolina, nobody was seriously injured (apart from a few vaporised hens), and the bomb's built in safety device worked. As *Newsweek* states,

Viewed calmly, the incident of the unexploded A-bomb should have supplied clinching proof for the claim which both the AEC and the Air Force have often made. Atomic bombs minus their plugs are merely inert lumps of uranium or

¹¹⁶ Ibid., p12-17

plutonium that cannot fission or split explosively, even when the TNT trigger is detonated.¹¹⁷

Time and *Newsweek* both viewed the incident very calmly indeed. They were critical of the international press, however, who did not view the incident calmly. In the UK, where US atomic bombers were scheduled to be based, there was much criticism of the incident. *Time* dismisses the criticism because it came from socialists and pacifists.¹¹⁸ The implication being that such people's opinions would obviously be suspect in this situation, and should therefore be ignored. *Newsweek* pointed out that the Soviet Union made a lot of noise about the incident, cranking out propaganda, while testing two new nuclear devices themselves.¹¹⁹

Time ends their report with the comments made by the mayor of Florence, David McLeod: "We all realize we live in perilous times, and our nation must be prepared to defend itself at a moment's notice. There are dangers in such defence, and this is one of the dangers."¹²⁰ *Time* feels this sums up issue perfectly. The US is in danger of being attacked by the Soviet Union, and therefore must ready its defences. Accidents will happen; they cannot be helped, but no-one got seriously hurt so what is the big deal? There are bigger issues at stake here than someone's house.

The *Nation* offered a counterargument to *Time* and *Newsweek*. After a quick recap of the event, the *Nation* queries the concept of an 'unarmed' bomb, and that the Air Force asked 'all personnel' to leave the area. By personnel, they meant civilians.

¹¹⁷ "A-war by accident?", p60

¹¹⁸ "Mars Bluff," *Time* 71 (24 March 1958), p23

¹¹⁹ "A-war by accident?", p62

¹²⁰ "Mars Bluff", p24

It is a term used by the military to describe human beings so debased in their reason that they can accept as 'unarmed' a missile that destroys a man's house and injures his whole family. Used this way, 'personnel' is a very dirty word.¹²¹

This, the *Nation* feels, has wider implications than just this incident. A situation has been created where the people will accept anything if it is done in the name of defence. They cite the example of the AEC, who had announced that a recent underground nuclear test had not been felt 500 miles away. This affected the possibility of an effective detection system for nuclear testing. They later admitted that it was actually detected in Alaska, over 2000 miles from the test site. The *Nation* accused the AEC of being "careless of the truth in an issue of grave and immediate international concern."¹²² Why did people not rise up against these lies? Because they were already 'personnel', said the *Nation*. Americans did not have to worry about the Soviet Union enslaving them, as they were already enslaved.¹²³

The *New Republic* provided a similar argument to the *Nation*; however, they discussed the incident in the wider context of the national attitude towards nuclear weapons. The "US newspapers gave both incidents [Mars Bluff, and the AEC test] only listless attention. Mistakes will happen, they explained."¹²⁴ According to the *New Republic* there was a general malaise in the US about such things. Americans are bored with warnings, they said. As with the *Nation*, they felt there was an acceptance of anything if it was done in the name of defence. The reason for this they felt was that the spectre of McCarthyism still lingered. Talk of disarmament was seen as appeasement, and unpatriotic.

¹²¹ "Citizens or Personnel? Accidentally Dropped Bomb," *Nation* 186 (22 March 1958), p245

¹²² *Ibid.*, p245

¹²³ *Ibid.*, p246

¹²⁴ "Mistakes Will Happen: Accidentally Dropped Bomb and Bomb Experimentally Exploded Underground," *New Republic* 138 (24 March 1958)

The result is a national mood of indifferent helplessness. Nuclear war? what can we do about it! Better relax, and let our inner frustration find vent in a kind of diabolic humor as we shrug at 70 million dead.¹²⁵

Certainly the reports in *Time*, *Newsweek*, and Burleson's book, showed that Bill Gregg did not seem too concerned that a bomb had been accidentally dropped on his house. It was a mistake, these things happen. In times like these it is expected that a few things like this will happen. Burleson wrote his book twenty years after the incident, but even the family members that he interviewed then seemed more bitter about the two year wait for financial compensation, and that they did not receive as much as they had originally asked for, than the incident itself.¹²⁶

While mechanical failures certainly happened, and were reported by the media, it does not seem that the general public were too concerned about them. In Gallup's published polls for this period there is not one poll concerning itself with nuclear accidents. The Mars Bluff incident may not have generated much long term interest in accidents, but it was widely reported. Surely someone somewhere would have wanted to know what the public reaction to the incident was, and would have arranged for Gallup to conduct a poll? That does not appear to be the case however. Was the *Nation* correct in its assessment that Americans were already enslaved?

Just a year before, reports of an accident involving radiation at a manufacturing plant in Houston, Texas, had proved people were jittery about anything nuclear. On 13th March 1957 a routine job to open a canister of iridium pellets went wrong when the remotely worked lathe cut into several of the pellets, releasing a cloud of radioactive particles into the air conditioning system. Exactly which of the four workers in that

¹²⁵ Ibid.

¹²⁶ Burleson, p16

section was working the lathe at the time is not clear. *Time* and *Newsweek* reported that it was Harold Northway, but the *Reader's Digest* claimed it was Jackson McVey. Both men received high doses of radiation, though they were unaware of it for over a month. There is one thing all three journals agreed on, however, and that was the dramatic nature of the accident. The incident in Houston was, according to *Newsweek*, "the first such dramatic case of civilian exposure to atomic radiation in U.S. history."¹²⁷

The families of both Northway and McVey were shunned by their friends and neighbours after the incident was made public. *Time* described the result as a "wave of hysteria"¹²⁸ which took over the plant and anyone concerned with the accident. They emphasised that the accident was not reported to the AEC, as was legally required, for over a month. It was only when an external company was brought in to discover the extent of the contamination that the accident was finally reported and made public. The AEC, as usual, stated that they were not too concerned, as iridium has a half-life of just seventy-five days, and would therefore disappear quickly.

While the *Reader's Digest* blamed people's fear of the families on "public ignorance and anxiety,"¹²⁹ they themselves dramatised the incident, by entitling their article 'Atomic Tragedy in Texas'. While the accident was serious, and affected the lives of the men and their families both immediately and probably for several years afterwards, the word tragedy implies more a catastrophic event. Nobody was seriously harmed, and the incident was probably forgotten by all except those directly involved. They end their article by once again emphasising the fear of all involved.

¹²⁷ H.E. Northway, "Lepers of Our Times," *Newsweek* 49 (13 May 1957)

¹²⁸ H.E. Northway, "Plague of Iridium," *Time* 69 (13 May 1957)

¹²⁹ J.P. Blank, "Atomic Tragedy in Texas," *Reader's Digest* 71 (October 1957), p101

There may or may not have been a damaging dose of radiation. But there has been another kind of damage – one that doesn't show up on instruments and in medical tests. It comes from fear and anxieties and disrupted family lives.¹³⁰

This accident caused the Northway and McVey families to be treated like lepers. There were no cries of 'mistakes will happen' after this incident.

The journal's reactions to the accident are an interesting contrast to that of the Mars Bluff incident just a year later. The concern they show for the Northway and McVey families is quite different to that of the Gregg family. The Gregg property was made temporarily radioactive, but there are no stories of friends and neighbours shunning them. If they had would it have made the incident more tragic? Possibly not, as the Mars Bluff bomb accident involved defence issues, and was therefore more acceptable. The *Reader's Digest* did not even carry an article on it. The general public's fears are also a factor. They were more afraid of radioactive contamination than bombs being accidentally dropped, though the probability of either one happening was surely about the same.

The *Nation* published an article by Carl Dreher in September 1958, in which he outlined the possibilities for accidental war. As he saw it, there were three possibilities: catalytic war, technological mishaps, and psychological or personnel hazards. Dreher dismissed catalytic war, where a third party tricks nuclear powers into declaring war on each other, as not being relevant at that time. Perhaps in the future, when more nations became nuclear powers, it might be a threat, but not in 1958.¹³¹ The other two possibilities were very real though, Dreher felt. Technology is fallible; a nuclear power

¹³⁰ Ibid., p106

¹³¹ Not everyone agreed with Dreher's opinion on that topic. As shown in chapter 2, in Shute's novel *On The Beach* the war that destroyed the earth was started by a third party which tricked the US and Soviet Union into attacking each other.

station is no less likely than a coal power station to have a mechanical error just because it is nuclear. The problem is multiplied with military devices, which were not designed for safety in the first place.

If eight Nikes – short-range anti-aircraft missiles with TNT warheads – could explode for no ascertainable reason at a base in New Jersey, scattering the warheads over a radius of three miles and killing ten people, IRBMs with nuclear warheads can go off in the NATO or Warsaw Pact countries and land in ‘enemy’ territory.¹³²

The dilemma Dreher presented was how would you then explain to the enemy that it was an accident, before they have replied with their own missiles? It is a difficult problem, and Dreher did not provide a solution to it. Simply stating that that he did not like it is not enough to trigger changes. For the readers to be actively engaged in the subject, enough to want to do something about it, a writer needs to offer an alternative. As so often happens though, Dreher was just critical. Though perhaps, with this particular journal it is not necessary to attempt to engage the readers quite so much. The *Nation* is a journal that one reads because the readers have similar opinions to the writers.

A second problem, for which Dreher did suggest a solution, was that of the radar systems. Both the US and Soviet Union had been spending more money on missiles than defence. As a consequence their radar early warning systems were woefully inadequate. Dreher believed that while attack capabilities were more important than defence the danger of accidental war would be at its greatest. While Dreher admitted that the US radar system had improved, in comparison to the steep rate of development for missiles radar had been left far behind. Dreher believed that engineers usually presented optimistic faces professionally, so when they started to complain, as they had been, that

¹³² G. Dreher, "War by Accident," *Nation* 187 (6 September 1958), p106

the system was inadequate the situation must have been serious. According to reports in *Electronic Week*, said Dreher, “even in the absence of enemy jamming, it [the radar] can’t distinguish between missiles and meteors or electrical noise,”¹³³ and no new projects were being developed to change this. A radar system should increase the warning time, which is especially important for missiles, as the time from launch to hitting the target is so short compared to bombers.

The biggest threat of accidental war though, Dreher believed, was not faulty or inadequate systems, instead it came from personnel hazards. The problem was becoming more urgent as the missiles developed, Dreher felt, with the peak coming around 1960. This was when the next generation of Intermediate Range Ballistic Missiles (IRBMs) were due to be rolled out to sites across Europe. The existing generation was liquid fuelled, and for safety reasons could not be fuelled until they were ready to be launched. This delayed the launch time slightly, allowing more time for decisions to be made. The new generation were to use solid fuel, allowing them to sit fully fuelled on the launch pad, ready to fire at a moment’s notice.¹³⁴

Thus the nervous, psychotic or fanatical launch officer will have his chance to trigger off an accidental war almost as easily as a high school boy can smash a revolver cartridge with a hammer.¹³⁵

The new generation of IRBMs did not allow for delayed retaliation. If the missile site radar detected an incoming missile, a decision had to be made as to whether it was a real attack or a radar error. With the older missiles, the decision did not need to be made until the missiles were ready to launch, which would have been around thirty minutes. That is not a lot of time, but if it were a real missile it would have been enough time for it to

¹³³ Ibid., p106

¹³⁴ Ibid., p107

¹³⁵ Ibid., p107

reach its target. The retaliatory strike could therefore have been launched in the knowledge that the US was truly under attack. The solid fuel missiles would have a greatly reduced launch time, Dreher believed, leaving no time for decisions. This was key to Dreher's argument. It does not necessarily matter if the launch officer is nervous, psychotic, fanatical, or even completely competent. With the reduction of decision time no-one would be in the position to make rational decisions.¹³⁶

The Soviet Union was in the same situation themselves, but as Dreher pointed out, they had been quick to capitalise on the fear of accidental war for propaganda purposes. The armaments race had a polarizing tendency Dreher felt, that meant as soon as one side took a position the other must immediately take the opposite. Despite the propaganda though, the Soviet Union had a strong argument in this case. The advent of missiles put a large group of people in the position to initiate a nuclear war either accidentally or irresponsibly. As Dreher stated, "[t]his is not a Russian fact, not an American fact, but a fact."¹³⁷ What was also a fact was that emotional instability was regarded as industry's top medical problem in the period. Dreher referred to a *Wall Street Journal* article just a few months earlier, in which they cited a survey of 38 000 industrial accidents. It was found that psychogenic factors played a part in eighty percent of them.¹³⁸ There is no reason to believe that military personnel would be exempt from mental or emotional abnormalities, any more than the rest of the population would be. Particularly, as Dreher noted, when the jobs they were doing were conducive to stress. The radar operators and SAC bomber crews were on a status of constant alert. It is not

¹³⁶ Ibid., p106

¹³⁷ Ibid., p107

¹³⁸ Ibid., p108

possible to be in a continued state of readiness for a prolonged period of time without some form of stress or fatigue that could affect performance.

It was this problem that *Harper's* sort to address three years earlier, in October 1955. They published an article by Richard S. Meryman, Jr., in which he interviewed a SAC bomber crew and discussed the mental, as well as physical, strains they were under. The crew was constantly on one hour notice to be deployed. They had to account for their whereabouts at all times. Meryman cites one crew member pinning a note to his front door giving the precise location of the beach he was at and the time he would be return.¹³⁹ Despite all the mental pressures they were under, the crew feel that mistakes were unlikely, as they were trained so well.

“We’re made to feel we’re at war, constantly doing missions which are combat simulated,” says Anderson. “I flew in World War II and in Korea. I’ll be honest with you. I’m flying tougher missions now in training. If they ever blow the whistle, I don’t see how anybody can make a mistake.”¹⁴⁰

Steve Anderson (which was not his real name, Meryman changed all the crew’s names to protect their anonymity) was the navigator/bombardier for his crew, and despite his assertions, he himself had made a mistake on a recent training mission. Due to his miscalculations they had missed Tampa by ninety-five miles. The crew was completely reliant on the performance of the bombardier for ratings and promotion, applying additional pressure to an already stressful job. In SAC parlance a mistake like that was known as ‘throwing a bad bomb’. Despite their training it was a frequent enough occurrence in SAC that they had accountability hearings for them, where the bombardier

¹³⁹ R.S. Meryman Jr., "Guardians," *Harper's* 211 (October 1955), p37

¹⁴⁰ Ibid., p38

was required to explain his actions to his superiors. It was a concern for the crew's families as well, as Anderson's wife knew well:

"Nobody being perfect," she said, "I'm just human enough that I have worries of my own, and sooner or later I have to confide in Steve like a person should. I was in a state last week – and I finally was going to bust so I talked to him. You've got to have a marriage. But then he went out and threw a bad bomb. Now I wonder if I had anything to do with it. I'll never know – and neither will he."¹⁴¹

They admitted that personal and family problems could affect their performance, but that was not an explanation they could give in a hearing. Their fallibilities were supposed to be trained out of them. Meryman was not being critical about these fallibilities though, just acknowledging that they exist.

Meryman's article was about describing the heroes of SAC. Though he himself stated there were no heroes, he was creating them. He described them as men who have "personally assumed the burden of America's international commitments."¹⁴² They were ordinary family men, facing extraordinary circumstances in their work. Is that not the definition of the All American Hero? Though he points to their fallibilities there is no doubt that he believed they could overcome them. His article was an attempt to humanise SAC and the threat of nuclear war. Yes, it is a tough job; yes, the prospect of war is scary even for them; yes, they are human and mistakes can happen. These men are professionals, however, and the American people can rely on them to do the job if the time should come. If war comes in the future it will not be fought by mindless automatons, it will be fought by men like these. They are trained for the job, and they will not crack under the pressure.

¹⁴¹ Ibid., p42

¹⁴² Ibid., p38

An article such as Meryman's played an important role in reassuring a scared public. After the Mars Bluff accident *Newsweek* also tried to reassure the public that bomber crews would not deliberately make mistakes that could start a war.

A Pentagon official with an intimate knowledge of SAC operations says flatly "it is impossible for one pilot to start a war. It takes two to tango and at least three men to cope with an atomic weapon aboard a plane."¹⁴³

The Pentagon, and therefore *Newsweek*, were confident that they had accounted for the possibility of one member of the crew becoming disturbed enough to drop a bomb. Their crews were constantly monitored by psychologists to assess their mental and physical well-being.¹⁴⁴

But what of the possibility that all the crew would decide to drop their bomb? *Newsweek* has the answer to this problem too. They reported on an experiment where volunteers were given LSD to induce temporary insanity. The results showed that the men would be physically incapable of flying a bomb mission. The idea that a drug induced high is an accurate measure of a crew's ability to perform a task should they crack under pressure is quite laughable now. Though at the time it probably seemed like a reasonable experiment. *Newsweek* certainly accepted it as a reassurance that bomber crews would not be starting a war any time soon.¹⁴⁵

Peter Bryant's 1958 novel *Red Alert*, however, showed how a war could be accidentally started, because of one individual's actions. In the novel, General Quinten, a SAC base commander, sends out his B-52 bombers to attack the Soviet Union. SAC had a number of fail-safes in place, in order to prevent the bombers accidentally being sent to their targets, but these failsafes had a weak spot. Because of the nature of nuclear war, it

¹⁴³ "A-war by accident?", p62

¹⁴⁴ Ibid., p62

¹⁴⁵ Ibid., p62

had been necessary to allow field commanders to exercise almost autonomous control over their crews. If Washington DC and NORAD were both wiped out, SAC would still be functional. In *Red Alert* Bryant showed that this could be a mistake, as Quinten is able to order an attack which cannot be recalled, because all the failsafes are working for, not against him.

Quinten's reasoning behind his actions is that attack is the best form of defence. Both the Soviet Union and the US are developing ICBMs, but the Soviet Union will have their missiles functional first. Quinten believes, as did many in the US, that the Soviet Union will not hesitate to attack as soon as they have an appreciable advantage because they are after one thing alone – world domination.¹⁴⁶ Quinten attempts to explain his actions to his assistant, Major Paul Howard, arguing that the US stance of not attacking first had given the Soviet Union the upper hand.

As the destructive potential of weapons has increased, so the margin of retaliatory time has decreased. Russian I.C.B.M sites fully operational even two days before their counterparts over here, can win the war. That's where the Russian planning has been so good.¹⁴⁷

Therefore, in Quinten's eyes, the US must strike before the Soviet ICBMs are operational. If they do not, the Soviet Union will be able to disarm the US. Major Howard understands Quinten's argument, but his actions have led to US forces fighting each other, which Howard finds unacceptable.

When the US President discovers what Quinten has done, and cannot recall the bombers, he notifies the Soviets in order to give them time to evacuate the target cities. He gets a nasty surprise in return, when they notify him that they have a 'doomsday

¹⁴⁶ Peter Bryant, *Red Alert* (New York: Ace Books, Inc., 1958), p91

¹⁴⁷ Ibid., p90-1

weapon'. A doomsday weapon is one that would be triggered in the event that the country which owns it suffers a total defeat. The weapon would destroy not only that country, but the rest of life on earth too. It is the one thing that Quinten did not anticipate. The weapon in question is buried deep in the Ural Mountains, and when exploded will coat the earth in a radioactive cloud, extinguishing all life. The Soviets believe that if all the bombers get through to their targets, the level of destruction will be such that they would be forced to activate this weapon. Despite US assurances that the attack was an accident, the Soviets do not feel that they can believe them.¹⁴⁸ As Bryant notes, "[t]he Pentagon and Kremlin were separated by eight hours of time, and forty years of mutual mistrust."¹⁴⁹

Bryant shows how quickly a nuclear war could escalate from a small incident, under the right circumstances. Both the US President and the Soviet Ambassador to the US have only been in their jobs for a few months. They were still learning their roles, and consequently were slightly hesitant in their reactions. Also, the Soviets had not announced that they had built a doomsday weapon, which defeats the object of having one. Bryant makes several comments on the Slavic nature, one of which is that only the Slavic acceptance of fate could have led them to develop such a weapon. After all, what is the point of crafting a weapon that cannot be used without killing the wielder?¹⁵⁰ It is only through the sharing of information between the two countries, and the detective work of one man (an American naturally), that disaster is narrowly averted. All the planes but one are recalled, and the final plane misses its target. Though their nuclear bomb explodes, it does so in open country, injuring no-one.

¹⁴⁸ Ibid., p78

¹⁴⁹ Ibid., p176

¹⁵⁰ Ibid., p154

While in Bryant's novel both sides accept that once ICBMs become operational war is pointless,¹⁵¹ it is the advent of these missiles that causes concern for accidental warfare to grow in the media. A bomb could be deliberately dropped on the Soviet Union by an American bomber crew, or vice versa, but due to the distances involved it would take several hours for a retaliatory attack. Those hours would be the crucial time in which the politicians negotiate to avoid all out war. With the advent of ICBMs that negotiation time disappeared.

This was one of the concerns of Charles Porter in his March 1960 article for the *Nation*, 'Accident or Aggression?'. Human beings and nuclear weapons are a bad combination, Porter argued, and a major catastrophe was inevitable. The possibility of starting World War III came down to three basic facts:

First, thousands of nuclear weapons, many of unthinkable power exist today.

Second, almost all of them are ready for instant detonation. Third, their custodians are human beings.¹⁵²

Porter dismissed mechanical or technological failure as a remote possibility. The biggest concern for him was human fallibility. While safety measures had been implemented, he felt there was no rule or law devised by man that could not also be circumnavigated by man. He cited the example of a Royal Air Force base in the UK which he visited. For security reasons he was not allowed to provide exact details of the breaches in the regulations. He did state, however, that despite being honest and able men, and without any malicious or illegal intent, the personnel at the base frequently ignored the regulations designed to avert accidents.¹⁵³ This is natural human behaviour. We all take little shortcuts here and there every day, to make our lives run a little more smoothly or

¹⁵¹ Ibid., p190

¹⁵² Porter, p202

¹⁵³ Ibid., p203-4

quicker. They are not done to deliberately affect anyone else, but they are not always done with thought to anyone else either.

Porter described the custodians of nuclear weapons as “error-prone mortals.”¹⁵⁴ Porter asked the question whether, with the shortened (or even eliminated) launch times and therefore shortened decision times, an accidental or unauthorised nuclear explosion could trigger an all out war. He had been briefed on the problem by SAC officials in 1957, and had later checked his findings with several Pentagon officials. Despite the official policy that it could not possibly happen, they were all in agreement that should a ‘mystery’ nuclear explosion be detected the military would be put on the highest state of alert. This presented an interesting dilemma. Should the US have gone to high alert, the Soviet Union would have done the same. Then the US would be faced with determining whether the Soviet Union was readying itself for defensive or offensive action. Of course, the roles of the countries could be reversed, but the situation remains the same. The preparations for defence and attack appear the same.¹⁵⁵

Porter was not trying to simply scare people with this article; he was trying to educate them. The first step towards resolving this dilemma, he felt, was public recognition of it. They were living in a time of a “mixture of maximum weapons, minimum decision times, and mere mortals.”¹⁵⁶ The possibility of a war being started accidentally was very real, and must be discussed. Increased communication between the two countries would lead to a better understanding. This in turn could ease the tension between the US and Soviet Union, allowing them to trust that they are each telling the truth when accidents happen. Porter’s third proposal was for international law. On this

¹⁵⁴ Ibid., p204

¹⁵⁵ Ibid., p204

¹⁵⁶ Ibid., p205

point he seemed a little too optimistic. A UN Charter on nuclear weapons would only have been effective if both the US and Soviet Union agreed to abide by it. This may be a cynical twenty-first century attitude, as we have seen the UN's ineffectiveness against the US, when the US decided on a course of action that many other countries did not agree with. However, Porter seemed to be placing too much hope in an international agreement. He pointed out that it may seem impractical at first, but then so is a nuclear arms race. This ignores the undeniable fact, though, that human beings have a history of fighting rather than negotiating. An international agreement requires trust, and it is not possible to trust someone when you suspect them of trying to enslave or kill you and your family.

Porter was ultimately optimistic about the future. As his quote at the start of this chapter states, he refused to accept the inevitability of nuclear doom. Humans may be error-prone, but he had faith that we would see reason before it was too late. His reason for this was the growing number of protesters, and people just speaking out, against nuclear weapons. By 1960 it was becoming more acceptable to argue against nuclear weapons, and the number of people doing so was increasing.¹⁵⁷

It is perhaps for this reason, the lack of protest until the end of the decade, that there is so little in the media in the 1950s about accidental warfare. Compared to radioactive fallout or how to survive a nuclear attack, it was not a concern to most people at that time. It is not until that advent of ICBMs that it became an issue. Industrial accidents involving nuclear products were scarier to the public than accidental war. The ICBMs changed that because of the reduced decision and negotiation time. If it was believed that a military installation was under attack a decision needed to be made

¹⁵⁷ Ibid., p205

quickly. When the retaliatory strike was to be delivered by bomber there was time to recall them after they had left the base. Missiles could not be recalled, so the decision made had to be the right one. At the same time the missiles took much less time to launch, so the time available to make the decision was greatly reduced, applying additional pressure as well. It was then that the more politically outspoken journals, such as the *Nation*, took up the challenge. Other journals, such as *Time* and *Newsweek* remained loyal to the official policies of the AEC and the military, reporting only on accidents on US soil, and not discussing the possibilities for accidental war.

Concern for accidental warfare has traditionally been seen as an issue from the 1960s onwards. Though the sixties are seen as the time when Americans began to protest against nuclear weapons, the concerns that drove those protests had their origins in the late fifties. It appears that to most people the prospects of the Soviet Union attacking, or being harmed by radioactivity from a nuclear test, were more likely to happen than a war being started accidentally. Some people looked to the precedents set by history, however. Machines can and do break, whether they have nuclear components or not, and humans have always been fallible. Just as in the late forties and early part of the fifties with anti-communism, trust was an issue. But instead of mistrust about people's loyalty to the US, with accidental warfare the concern was about people being too patriotic. It was an issue that would continue to grow, but while accidents and accidental warfare only became an issue at the end of the decade, concern for nuclear arms control was evident from the beginning of the nuclear age.

Chapter Four – The Arms Race and International Control

[An international agreement] can prevent an atomic-arms race from being a prime contributing cause of war; and it can prevent the secret accumulation of atomic armaments to be used in a surprise attack by an aggressor.¹⁵⁸

Editorial, the New Republic, April 1950

“Man is about to destroy himself unless he has a corresponding revolution in his political thinking to equal the incredible advance which the scientists have produced for him in his ability to destroy fellow men.”¹⁵⁹

Thomas Finletter, Air Secretary, January 1953

The previous chapters have all focused on defence from nuclear weapons in one way or another: civil defence, protection from radiation, and protection from accidents. For some people during the 1950s, defence from the weapons was not enough; they felt that the weapons should be banned completely. As the weapons were developed, becoming easier and, more importantly, cheaper to make, so the stockpiles grew. The issues of testing, international control, and disarmament were all interlinked. The calls for a nuclear test ban have been discussed in the chapter dealing with radiation, and so will not be discussed here. International control and disarmament were complex issues, hampered by scepticism from all parties that they were achievable.

In 1946 the US had presented a plan for nuclear disarmament, known as the Baruch Plan. Bernard Baruch had been charged by President Truman to present a plan for international control to the UN. His plan was based on a plan originally put together by then Undersecretary of State, Dean Acheson, and former director of the TVA (and soon to be chairman of the AEC), David Lilienthal. The Acheson-Lilienthal plan proposed the creation of an international authority controlling all atomic materials and banning the development of atomic weapons, though the US would be allowed to keep its

¹⁵⁸ "Promise of Our New Atomic Weapons," *Reader's Digest* 59 (December 1951), p5

¹⁵⁹ "H-Bomb Hand Wringing," *Time* 61 (19 January 1953)

small stockpile. Baruch took the plan further by adding on sanctions against violators, and removing veto power on the matter from the UN Security Council so that violators could not avoid punishment.¹⁶⁰ The US held a nuclear monopoly and felt sure that it could dictate world nuclear policy, before anybody else got the bomb. The Soviet Union however did not agree to the plan. This is unsurprising, as the plan meant they would not have been able to continue developing their own atom bomb. By 1949 the situation had changed very little in terms of policy, but the calls for action from outside the Administration were growing louder.

If the loss of the nuclear monopoly caused a change in Administration's policy on international control, it is not immediately obvious from the journals of the time.

Baruch's plan counted on the US nuclear monopoly continuing for several years. When this changed, the immediate policy appeared to be to re-establish nuclear superiority, with the hydrogen bomb. It was the first important decision of the nuclear arms race. At first this seems like it would have been a fairly straight forward decision. When it was being made, in late 1949 and early 1950, little was known about radiation dangers, so the H-bomb was seen as merely a bigger bomb. It would be able to harness more power, and therefore have a bigger blast radius. It seems like a natural progression from one to the other. There appeared to be no moral ambiguity about it, as once one city destroying bomb has been developed, and used, it seems justifiable to build more. Indeed there was little public debate on the subject; the decision was down to the President entirely.

But in January 1950 a few journals did pick up the story. *Time's* attitude to the decision was that the US did not want to build such a destructive weapon, after all it

¹⁶⁰ John Patrick Diggins, *The Proud Decades: America in War and Peace, 1941-1960* (New York: W.W. Norton & Company, 1989), p62

would cost a great deal of money, but the Soviet Union was forcing the US to do it. The US had no choice after the Soviet Union exploded their first atomic bomb in the summer of 1949. *Time* felt that US security depended on it.¹⁶¹ Voices of opposition were just playing into the Soviet Union's hands *Time* argued in a March 1950 article, entitled 'Hydrogen Hysteria'. Some scientists had spoken out about the dual horrors of the hydrogen bomb – the blast and the radiation. This was counter-productive *Time* felt, as the hysteria it produced would push the US public into calling for 'dangerous' concessions for the Soviet Union.¹⁶² They used the example of Chicken Little, who thought the sky was falling, and panicked her friends too, "[t]hen Foxey Loxey led them all into his bombproof cave and ate them up."¹⁶³

Even in 1953, after the US had exploded its first hydrogen bomb at Eniwetok Atoll in November 1952 and had seen the enormous damage it could do, *Time* was still determined to remain positive about the decision. Despite the revelation that the destructive power of hydrogen bombs was measured in megatons, as opposed to kilotons for an A-bomb, they produced deadly gamma rays, and even the Air Secretary, Thomas Finletter, was making dire predictions about mankind destroying itself, *Time* still believed in the hydrogen bomb. They felt that it posed "dreadful – but not hopeless – problems"¹⁶⁴ for the White House. As always, *Time* backed the administrations of both the outgoing Truman, and incoming Eisenhower.

There was a voice of dissent, however, from David Lilienthal. The outgoing chairman of the AEC had stayed beyond his appointed date of resignation specifically to

¹⁶¹ "The Choice," *Time* 55 (16 January 1950), p19

¹⁶² "Hydrogen Hysteria," *Time* 55 (6 March 1950), p88

¹⁶³ Ibid., p88

¹⁶⁴ "H-bomb hand wringing"

debate the issue of the hydrogen bomb. According to *Time*, Lilienthal felt that the US should not go ahead with the development of the H-bomb until it had explored every avenue of international agreement through the UN. This was a reasonable stance, *Time* felt; however, even if the Soviet Union would discuss the subject it was likely that they would build their own H-bomb, forcing the US to do the same. Was it worth the risk to wait? *Time* did not think so.¹⁶⁵ In his journals, published in 1964, Lilienthal commented on several meetings that took place in October 1949 to discuss the H-bomb. He stated clearly on 31st October 1949 that he was opposed to it, on the grounds that it would not improve the defence of the US, “[t]here is no scientific or non-military by-product – it is straight gadget-making.”¹⁶⁶ Clearly Truman felt otherwise, or perhaps he too thought that the Soviet Union would build their own H-bomb, because he authorised the development of an H-bomb.

The *New Republic* was also very vocal in its opposition to the H-bomb decision. They derided the popular press for applauding the decision, and ignoring the real issue. For the *New Republic* the real issue was one of morality. This was not just another bomb, a natural progression in the weapons development. A nation with an H-bomb would have the power to utterly destroy another nation. More than that, though, it was “a confession of defeatism, a failure of initiative, of imagination, of bold thinking and moral conviction in dealing with the crucial problem of modern times.”¹⁶⁷ In the *New Republic*’s view the US was just building bigger bombs to hide behind. The proactive thing to do would have been to communicate with other nations, to negotiate a way forward that did not include

¹⁶⁵ "The Loaded Question," *Time* 55 (30 January 1950)

¹⁶⁶ David E. Lilienthal, *The Journals of David E. Lilienthal, Volume II: The Atomic Energy Years, 1945-1950*, 1st ed. (New York: Harper's & Row Publishers, 1964), p582

¹⁶⁷ "The Hydrogen Bomb," *New Republic* 122 (13 February 1950), p5

nuclear weapons. They reminded their readers that the way to solve the problem of nuclear weapons was not to build more of them.

We are not the keeper of the world's conscience; the arbiter of its morals; the helmsman of its course; the judge of its errors. We hold no monopoly of its resources, of its wisdom or of its weapons. We are not alone in seeking security and peace. We have no unique genius for prescribing the methods by which these ends can be promoted.¹⁶⁸

This is an interesting argument, and not one that would be found in a mainstream journal in the US at that time. They were arguing against the idea that the US is the global policeman, a concept that seemed to be taken for granted after World War II. The nuclear monopoly the US enjoyed immediately after the war, along with the inability of the Europe to fully protect itself while rebuilding, encouraged that belief. The *New Republic* believed that producing more weapons, nuclear or conventional, whenever another nation presumes to copy the US would only lead to war, not security.¹⁶⁹

After the 1st March 1954 hydrogen bomb test in the Marshall Islands that covered 379 people in the area and the 23 man crew of the *Lucky Dragon* trawler with radioactive dust, the *New Republic* were equally vitriolic. They felt, as Lilienthal did in 1949, that building bigger and bigger bombs had no military value at all. They point out that the biggest target in the Soviet Union was Moscow. Given the size of the city the biggest bomb needed to completely destroy it, and the 5 million people living there, would have been a five megaton H-bomb. The bomb tested in March was estimated to be between ten and twenty megatons. They asked what military justification could there be for a bomb that big. None had been offered, and worse still, the *New Republic* believed, was

¹⁶⁸ Ibid., p5

¹⁶⁹ Ibid., p5

that the Administration did not appear to believe that one was needed.¹⁷⁰ They could not understand the actions of an Administration that claimed the country needed bigger bombs, when the bombs were plainly unnecessary.

The *Nation* was equally unhappy with the decision. Frida Kirchway, writing in February 1950, felt that another effort to reach an international agreement should have been made first. 'Truman, they felt, could have made a statement indicating that the US was prepared to build the H-bomb, but would like to negotiate first.

Such a statement would at least have indicated that this country has not abandoned all idea of ending the competitive scramble toward war and general suicide. What Mr Truman actually said sounded like a door slammed shut in the face of hope.¹⁷¹

Kirchway felt that the decision to build the H-bomb was taken because the government refused to accept that the balance of power had changed once the Soviet Union had also got the bomb. She felt that the government had failed to grasp the fact that by developing the H-bomb they were simply encouraging the Soviet Union to develop their own. Instead of restoring American weapons superiority it would continue the arms race. Kirchway was hopeful at that time though, that as they still needed to develop the H-bomb, there was still time to reconsider their position.

International agreement over nuclear weapons and fissionable material did not just involve the US and Soviet Union. It was a worldwide issue. As such, the *New Republic* felt it came under the jurisdiction of the United Nations. They continually called for UN control throughout 1949 and 1950. They partly blamed the UN for the

¹⁷⁰ "The Bang Gets Bigger, Why?," *New Republic* 130 (5 April 1954)

¹⁷¹ F. Kirchway, "Some Other Choices," *Nation* 170 (11 February 1950), p120

failure of the Baruch plan; however, they felt that it was mostly the fault of the Soviet Union.

There are atomic weapons in the world today primarily because the Soviet Union has refused to accept the kind of strict international control which virtually every UN member (except Israel, South Africa, and Yugoslavia) outside the Soviet bloc has voted to be necessary... There are atomic weapons in this world today, moreover, because there is a fear of Soviet aggression...¹⁷²

The author of this October 1950 article, Peter Kihss, completely ignored the fact that the US was the first to develop nuclear weapons, that they were the only country at that time who had proved themselves willing to use such weapons, and had inserted a clause into their international control proposal that would ensure they kept their stockpile while all other nations destroyed theirs. Following general public opinion at the time, Kihss saw the US as working towards a better future, while the Soviet Union was trying to aggressively take over the world.

Kihss made a few suggestions for the way forward, which he believed lay with the UN. He proposed that the UN pass a resolution that the major six powers (the US, Britain, France, China, Canada, and the Soviet Union) would resume negotiations on the prohibition of atomic weapons and organisation of an international control agency. Meanwhile member nations should agree not to use atomic weapons except in measures of self-defence, as established by Article 51 of the United Nations Charter.¹⁷³ He also

¹⁷² P. Kihss, "Remember the Atom!," *New Republic* 123 (23 October 1950), p13

¹⁷³ Article 51 of the United Nations Charter states that "Nothing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security. Measures taken by Members in the exercise of this right of self-defense shall be immediately reported to the Security Council and shall not in any way affect the authority and responsibility of the Security Council under the present Charter to take at any time such action as it deems necessary in order to maintain or restore international peace and security." "United Nations Charter (Chapter VII)," [<http://www.un.org/aboutun/charter>], 26 June 1945.

felt they needed to explore the non-military side of atomic power, “the friendlier side.”¹⁷⁴ This, Kihss felt, could offer a positive opportunity for the world, and the UN would do well to focus on that. There were already UN precedents to follow. They had been sending AEC radioisotopes to Latin American countries for research and medical purposes for two years. Their atomic energy secretariat had published material on radioisotopes too, which could pave the way for them to regularly publish research results. They could even set up their own atomic laboratory. For Kihss, focusing on the peaceful uses of atomic power was the way forward.¹⁷⁵

This is a common theme in the argument for international control. There was a desire in some parts of the media to move away from stories on nuclear weapons and focus on peaceful nuclear power. President Eisenhower’s Atoms For Peace plan, presented to the UN in December 1953, was the first major proposal of his Administration. The *New Republic* looked at the proposal in detail; to see whether it matched up to its peaceful ideals. Their first concern was that the plan seemed to repudiate the Majority Plan (the Baruch Plan, as adopted by the UN) which the UN had been working with up to that point. While the negotiations throughout the late 1940s had brought together East and West on technical differences, the political differences had grown. This was reflected in the new plan, through its authors.

The plan itself was the product, not of scientists, diplomats, military experts and industrialists (as in the case of the Acheson-Lilienthal Report), but of speech writers and experts in psychological warfare.¹⁷⁶

The *New Republic* felt that to be workable an international control plan must be drawn up by experts in the fields it proposes to cover, not politicians and their staff. They drew a

¹⁷⁴ Kihss, "Remember the atom!", p14

¹⁷⁵ Ibid., p14

¹⁷⁶ "President's Atomic Plan," *New Republic* 129 (21 December 1953), p6

comparison between how presidents Truman and Eisenhower handled the issue. Truman discussed with the US's allies the basic principles they could agree to on international control, then brought in experts to transfer these principles into a plan. Eisenhower created his plan with just his advisors, presenting it to Britain and France just hours before he proposed it in his speech to the UN. The *New Republic* was not happy with this, for them an international problem requires an international solution.

Is the plan Eisenhower proposed a workable solution? The *New Republic* said not really. The first proposal was for a UN controlled international agency that would store all fissionable material, and provide it to nations as fuel for nuclear energy. On the issue of control the President stated that they did not need an inspection system, which he felt was the 'great virtue' of the plan. The *New Republic* felt that it "amounts to asserting that the plan solves the control problem by wholly ignoring it."¹⁷⁷ The problem being that many experts agreed a control system would not be workable without inspection. How else could any nation be assured that other nations were complying with the regulations?

Eisenhower was confident that the plan would lead to a new spirit of cooperation. The sceptical *New Republic* wondered how he could believe that when he had no supporting evidence from the post-war years.

A world which has taken from nations the ability to wage atomic war is one in which the benefits of atomic power can be realized. But the world envisioned by the President is one in which significant amounts of fissionable material are held by any number of nations including a revived Germany and Japan, although these nations retain the power to wage atomic war. The capacity of this world for self destruction is so great as to be almost beyond hope.¹⁷⁸

¹⁷⁷ Ibid., p6

¹⁷⁸ Ibid., p7

The plan, they felt, was dangerous, but it did have potential. The idea to create nuclear power plants could work, but only as part of a larger plan they felt. This is where the President's plan fell short. He was not necessarily to blame for the shortcomings, as he was undoubtedly just as unaware of all the details of nuclear power as the nation, after eight years of secrecy.¹⁷⁹ The *New Republic* is perhaps being a little too generous to Eisenhower on this point. In 1945 he was in command of the department which contained the Manhattan Project, and knew more about the first atom bomb than Truman did. As president he was no doubt kept informed, and as a military man he would have commanded the respect of the Pentagon. They acknowledge, however, that it was ultimately out of US control. Any plan was dependent on the Soviet Union's desire for peace. In this they were not convinced, which raises one of the key problems with proposals for international control in the 1950s – nobody really believed they would work.

As early as 1950 there were doubts that international control was a realistic proposal. On the surface politicians claimed they believed in it, but their statements said otherwise. In May 1950 the *Reader's Digest* published an article by Senator Brian McMahon, then Chairman of the Joint Congressional Committee on Atomic Energy. The article, entitled 'A Program for Atomic Peace', presented the Senator's views on international control and a diplomatic solution to the problem of nuclear war. First he established the usual 'them versus us' pattern of the Cold War, but complained that many people around the world had yet to understand that it was not just a war between the US and the Soviet Union, but that it involved everyone.¹⁸⁰

¹⁷⁹ Ibid., p7

¹⁸⁰ B. McMahon, "Program for Atomic Peace," *Reader's Digest* 56 (May 1950), p111

Why is our cause not better understood? I think the reason is clear. We have failed to dramatize the meaning of our offer to give up the atom bomb. This was a proposal [the Baruch Plan] unexampled for generosity and unselfishness in all human history.¹⁸¹

The Senator believed the plan to be so, because when it was made in 1946 the US still had their nuclear monopoly. But it was perhaps on reflection not quite so generous and unselfish. While the US would have been relinquishing a very powerful weapon, it would have ensured that no other nation (the Soviet Union in particular) would have been able to develop nuclear weapons either. As stated earlier, the Baruch Plan also contained a clause allowing the US to retain their stockpile, so what exactly were they giving up? Not as much as other nations would have at that time, that is certain.

Senator McMahon's plan would see the General Assembly of the UN hold a special atomic energy session. He suggested it could be held in Moscow, as test of the Soviet Union. If they were really committed to peace they would gladly hold the meeting in Moscow, if not they would decline it. Either way the US would win. If the Soviet Union did not allow the UN into Moscow, then the US would have proved that it was the Kremlin, not Washington, which was holding up international agreement. Did the Senator really believe the Soviet Union would allow the meeting to take place in Moscow? It does not appear so. This article comes across more as propaganda. Meeting in Moscow was suggested because the Soviet Union would almost certainly have declined, handing a propaganda victory to the US. McMahon was concerned about what other nations thought of the US. He wanted UN meetings broadcast around the world in

¹⁸¹ Ibid., p112

all languages so that people “judge for themselves who wants to use atomic energy for peace and who for atomic annihilation.”¹⁸²

The Senator ended his article by stating that the US objective was peace. They were looking for a world solution, and if one could not be found they would settle for a solution that united the non-Soviet people against the Soviet aggressors.¹⁸³ What aggressive acts the Soviet Union had performed to warrant such a label, other than develop their own nuclear programme, McMahon did not say. He did not need to, as he was preaching to the converted on that matter. Throughout the article he put the emphasis on the Soviet Union being responsible for establishing international control, while at the same time making it explicit that he did not trust them. Implicit in his writing was his belief that they would not agree to any US plans. In doing so he was probably echoing the opinions of the *Reader's Digest* target audience.

No one novel stands out as epitomising the ideas of the time on the issue of nuclear proliferation. It was not a subject that authors chose to write an entire novel about. It was more likely a secondary theme through which the author illustrated their main subject. One novel which represents that category of work is *Not This August* by C.M. Kornbluth (1955). The main story is not nuclear proliferation, but it is interlinked with the main themes.

In *Not This August* the combined forces of the Soviet Union and Chinese Republic have invaded the US. The novel opens on 17th April, 1965, when the US finally capitulates after a three year struggle. It follows farmer, and Korean War veteran, Billy Justin, as he adjusts to life under Soviet control. Initially nothing changes; the Soviets

¹⁸² Ibid., p113

¹⁸³ Ibid., p114

take over the existing infrastructure and adapt it to their needs. As the months pass however, the people are slowly squeezed, as their Soviet rulers show their true colours. Farmers like Justin have their quotas continually raised. Failure to meet the quota means re-education, or death. Their produce is taken away to no-one knows where, though they all suspect it is back to the Soviet Union to feed the people there.

Being true citizens of the US they do not take this lying down. A resistance is formed, based on plans drawn up during the war for just such an emergency. During the war a satellite had been built, the *Yankee Doodle*. It was to be armed with H-bombs and sent into orbit. This would have won the war for the US, as they could destroy the Soviet Union and China. The satellite never made it off the ground, however, and was destroyed by the invading forces. Fortunately, the US military likes to double its odds of winning, and had been secretly building a second satellite in a deep underground cavern not far from Justin's farm. The leader of the project, a man named Gribble, had carried out his orders to seal the cavern and release tanks of lethal gas when the US surrendered. The act of taking the lives of the five thousand workers there had taken its toll on Gribble's sanity and he was unable to perform the second half of his task – find the means to continue the project. He handed over that task to Justin.

The second half of the novel focuses on Justin's attempts to make contact with the resistance groups, in order to complete the satellite. He is assisted in his attempts by local farmers, mail carrier Betsy Cardew (who is also the love interest for Justin, though Kornbluth fortunately resists the temptation to allow their flirtation to distract from the real story), drifter and lay preacher Mr Sparhawk, and hired hand Rawson, who turns out to actually be a general in the US Army, named Hollerith. Connections are made to the

nation wide resistance network, the suppliers and personnel to complete the satellite are brought in, and finally on Christmas Eve the uprising occurs to rid themselves of the invaders, and allow the satellite to be launched.

Kornbluth shows that on an individual basis Soviets can be nice and Americans can be nasty. The 449th Soviet Military Government Unit (SMGU) that initially controls Chiunga County, where Justin lives, does not treat the local citizens badly. The soldiers are polite, and crimes against the citizens are punished swiftly. The general opinion is that the Soviets are being civilised by the contact with Americans, and perhaps they are not so bad after all.¹⁸⁴ In the nearest community to Justin's farm, Norton, the local store owner was run by a man named Croley. Disliked by everyone, his only loyalties were to himself and money. He was quickly identified by the SMGU as the man to help them keep track of the farms in the area.¹⁸⁵ But Kornbluth quickly reverts to the standard views of the Soviet Union and the US at the time. The Soviet Union were evil. They were only being nice at first to lull people into a false sense of security. Once they were all inured into their new roles, the Soviets would be able to keep them under control with the minimum of effort. By the time the people had realised that they had become slaves, they would be too weak to put up any resistance. However, there the Soviet's had miscalculated because, as everyone knows, the average American is much stronger than the average Soviet peasant, no doubt as a result of all that freedom. Americans like Billy Justin do not set out to be heroes, they just are.

Kornbluth's comments on the arms race come right at the end of the novel. After the satellite is launched and begins its broadcast to the world, calling for the immediate

¹⁸⁴ C.M. Kornbluth, *Not This August*, 1st ed. (Garden City, N.Y.: Doubleday & Company, Inc., 1955), p49-50

¹⁸⁵ *Ibid.*, p39

surrender of Soviet and Chinese troops or the destruction of their nations, there is much rejoicing. General Hollerith tells them that this is only the beginning though:

We've got to start work immediately. They mustn't make *that* mistake, not ever. It isn't over and it'll never be over. What happens next is the Reds build a bombardment satellite of their own – secretly, in spite of all the controls we clamp on them. It'll take them a few years. We use those years to build a better satellite that'll shoot them out of the sky – but they'll know that, so theirs will be armed and steerable. Don't ever think it'll be over.¹⁸⁶

After all the hope and triumph of the Americans ultimately winning, this statement by the general gives the novel a pessimistic ending. On hearing this Mr Sparhawk kneels down to pray. Kornbluth makes a point that Sparhawk is praying once more to the Christian God of his childhood, as he has spent most of the novel mixing aspects of Zen, Buddhism, Hinduism, and a whole host of other religions. Justin and Betsy Cardew kneel down too and join him. When there is no hope for the future, all there is left to do is pray.

People had been concerned about the morality of nuclear weapons since they were first evolved. When the first A-bomb was dropped on Hiroshima Americans were wondering if they had done the right thing more than they were triumphant at winning. In the 20th August 1945 issue of *Time* they wrote that “the demonstration of power against living creatures instead of dead matter created a bottomless wound in the living conscience of the race.”¹⁸⁷ As time progressed, however, the shock wore off. As shown earlier in this chapter when reporting on the proposed development of the H-bomb *Time* derided the hysteria that had been produced by the decision. The pleas to address the

¹⁸⁶ Ibid., p189, original emphasis

¹⁸⁷ "The Bomb," *Time* 46 (20 August 1945)

situation with morality were left to the intellectual journals, the *New Republic* and the *Nation*.

Harold, Ickes, writing for the *New Republic* in November 1949, asked why there was no public debate to find a way forward now that the Soviet Union also had the bomb. Some people advocated holding the Soviet Union to ransom while they still could, by threatening to drop all the US's stockpile of bombs on Soviet soil, unless they agreed to the Baruch plan. While only Congress can legally declare war in the US, the people who advocated this plan felt that if the President took matters into his own hands there would not be much Congress could do about it. Ickes was appalled by such a notion, and asks "[w]hat ethical, moral or even religious principle may not be allowed a moratorium if our lives and those of our wives and children might be preserved?"¹⁸⁸ He goes on to talk about Christian faith and their martyrs. Suppose they had not been sacrificed, but instead had killed first because they anticipated being killed themselves?

Anticipated murder does not justify premeditated murder. Christ would have lived and died in vain were supposed followers of His to take into their own nervous hands, not only the human, but the divine law.¹⁸⁹

This is one of the few articles in the journals reviewed that looked at the subject with specific reference to the Christian faith. There is not a lot of religion involved in discussing politics during this period, outside of specific faith based journals, perhaps because of the Constitutional agreement to separate Church and State. Religion, particularly Christianity, was a large factor in American's lives during the 1950s so it is perhaps surprising that these journals did not publish more articles discussing nuclear warfare from a religious point of view.

¹⁸⁸ H.L. Ickes, "Doing, or Being Done," *New Republic* 121 (14 November 1949)

¹⁸⁹ Ibid.

Morality and the moral responsibility, as a separate issue from religious beliefs, did occur a little more often. In May 1954 the *Nation* published a letter from Gertrude C. Bussey, Chairman of the Policy Committee of the US Section of the Women's International League for Peace and Freedom. She called on the US to no longer keep blaming the Soviet Union for failures to reach an agreement.

Since the United States is the only government that has used an atomic bomb, and since it has led in the development of hydrogen bombs, the moral responsibility for seeking agreement on the elimination of these and all other weapons lies squarely at its door.¹⁹⁰

By continually blaming the Soviet Union for the lack of international agreement, the US government had backed itself into an awkward position. They claimed the high moral ground over the Soviet's, but it left them wide open to criticism like that of Mrs Bussey's. If the US was so morally superior to the Soviet Union, why was it not doing more to ensure that an agreement was reached? Mrs Bussey was also concerned that repeated threats of massive retaliation may well backfire, leaving the US no choice but to use nuclear weapons.¹⁹¹

The *Reader's Digest* discussed the morality of nuclear weapons in their own way in August 1959, by returning to the event that started it all fourteen years previously – Hiroshima. The article is an interview with Dr Arthur Compton, a former director of the metallurgy laboratory of the Manhattan Project. Entitled 'The Bomb – Did We Have To Drop It?' it looked at the development of the A-bomb and the reasoning behind using it against the Japanese. The article showed Dr Compton's soul searching while trying to decide what his advice should be to President Truman. To invade Japan would have cost

¹⁹⁰ G. Bussey, "America's Responsibility," *Nation* 178 (1 May 1954)

¹⁹¹ Ibid.

the lives of over two million Japanese and one million Americans. Thousands of Japanese people had already been killed during the fire bombing of cities such as Tokyo, but thousands of American soldiers were also dying in the Pacific. Dr Compton did not want to use the bomb, for “the simple reason of Christian compassion.”¹⁹² After all the military and scientific discussions of the situation, however, he felt that was the course they needed to take. The author asks him the crucial question, whether he was sorry that the US had dropped it. He replied that “we had to drop the bomb.”¹⁹³ By questioning the use and continued development of nuclear weapons people were also questioning the morality of their original use. It was constantly reiterated by the government’s critics that the US was the only country that had used nuclear weapons. The *Reader’s Digest* seems with this article to be trying to redress the balance in favour of the government. If the original decision was morally acceptable, it follows that the continued development of nuclear weapons in the name of security and world peace was also acceptable.

The issue of international control and disarmament was brought to a head in the popular media during the 1956 presidential election. Late in the campaign Democratic candidate Adlai Stevenson made it a campaign issue, by proposing a nuclear test ban as a preliminary step towards disarmament. The response from the Republican candidates, Eisenhower and Vice-President Nixon, was to call it ‘theatrical’, ‘naïve’, and ‘dangerous’. The *New Republic* applauded Stevenson on 8th October for taking a step towards ending the negotiation deadlock.

The Administration has wrapped up all disarmament questions in one bundle – that is, size of bomb piles, size of conventional forces, continued bomb tests –

¹⁹² P.S. Buck, "The Bomb, Did We Have to Drop It?," *Reader's Digest* 75 (August 1959), p113

¹⁹³ *Ibid.*, p115

and declared they must all be settled at one time under a single inspection scheme. The result is that we are stalled.¹⁹⁴

Stevenson's proposal had merit, they felt, as it could be policed with the minimum of effort. H-bomb tests could be detected without having to resort the inspection system which the Soviet Union so disliked. Any proposal that would move the world forwards was worthy of further investigation. The following week the journal complained that the Republican's criticism of Stevenson made it sound as if it was unpatriotic to even discuss the nuclear arms race.¹⁹⁵ *Time* on the other hand was dismissive of Stevenson's proposal. They felt that important decisions could be undone if "the matter were to be decided by nothing more than the appeal of a political candidate in search of an issue."¹⁹⁶

After all the calls in the intellectual media for public debate, the general public finally had their chance to express their opinion, through their votes. Eisenhower won the election with nearly ten million more popular votes than Stevenson. The electoral vote was 457 to 73, an increase from the 1952 election.¹⁹⁷ The election was not won or lost on this one issue, especially as Stevenson did not really start campaigning on it until just one month before the election, but it is an indication of public opinion at the time. Stevenson seized on an issue that he felt would grab people's attention. It may have possibly swung a few undecided votes his way, but it seems that the people who most wanted to hear his proposals were already intending to vote for him anyway.

The American public appeared to distrust the Soviet Union more than they feared nuclear testing, the associated radioactivity, and even a nuclear war. One question that was repeatedly asked by Gallup, in various forms, was whether people thought that there

¹⁹⁴ "Off Dead Center; A. Stevenson's Proposal," *New Republic* 135 (8 October 1956)

¹⁹⁵ "On Dead Center," *New Republic* 135 (15 October 1956)

¹⁹⁶ "Playing the H-Bomb," *Time* 68 (22 October 1956)

¹⁹⁷ Diggins, p307

would be another war soon. They asked this in December 1949, March 1950, January 1953, April 1954, September 1955, and December 1956. In the first three polls people thought that another war was likely within the next few years, and that the Soviet Union would start it. In 1954 and 1955, however, the majority of people thought that the H-bomb would make war less likely. By 1956 though opinion had changed, with the majority of people again thinking that war was likely soon.

The issues of international control and disarmament were present throughout the period. However, they were not subjects that journals such as *Time* and *Newsweek* involved themselves in very often. When they did it was usually to report on the latest Soviet rejection of a US proposal, thereby making the Soviet Union to be the bad guys once again. The *New Republic* and the *Nation* were deeply concerned with this matter throughout the period, the *Nation* in particular. Out of 165 articles dealing with nuclear matters published in the *Nation* between September 1949 and December 1960 more than half of them are about the issue of international control. Their message was the same throughout; international control was necessary, and was possible if all parties were willing. The US government it seems was not willing at the time, and as there was little support from the general public for the issue they had no incentive to push for an agreement.

Conclusion

“Some future Toynbee, studying the civilisation of the mid-twentieth century, may record that our supreme challenge was the discovery that atomic energy could be used either to destroy cities or to provide them with light and power.”¹⁹⁸
Louis Cassels, 1950

At the beginning of this study I proposed to look at the social impact of life under ‘the Bomb’, and how adequately the topic has been covered by the existing literature. The impact differed between social groups, across the time period, and across the four different nuclear issues discussed in the study.

Civil defence appears to have been most important during the early part of the decade. At that point people were still fearful enough of a potential attack to listen to government plans for evacuation or shelter. As the decade wore on however, two things happened, or rather did not happen, that caused frustration and apathy on the subject. The first was the lack of nuclear attack. The majority of the media continually asserted that the Soviet Union would attack as soon as they could. They exploded their first A-bomb in 1949 and their first H-bomb in 1953, but they did not attack. Despite all the lurid stories in the media, and novels like *Tomorrow* by Philip Wylie painting explicit pictures of what a nuclear attack would be like, most Americans had no direct experience of being bombed so the stories remained just stories to them.

Secondly, as people became more educated about nuclear warfare, they began to realise that the government civil defence policies were simply not adequate. The policies were developed when atom bombs were first created, and involved evacuation where possible, or otherwise shelter. Even for an A-bomb this would have been only a semi-

¹⁹⁸ L. Cassels, "Atomic Engines, When and How," *Harper's* 200 (June 1950), p50

workable policy, but it became obsolete when the first H-bomb was exploded. H-bombs produce enormous amounts of radioactive dust, which would cover many people trying to evacuate the area. In a small town people could perhaps get far enough away quickly enough, but an enemy would have been unlikely to waste its nuclear bombs on a small town. The targets during the 1950s would have all been major cities, and people began to recognise that it was not realistic to try and evacuate one million people in a short space of time under good circumstances, let alone with the fear and panic an imminent nuclear attack would produce.

The advent of ICBMs in the late 1950s did not reignite the fear of attack felt at the beginning of the decade. By that point it was too late. Though people were afraid, they were also fatalistic about it. With only thirty minutes warning time, assuming the missiles were even detected by the outdated radar system, trying to evacuate a major city seemed even more pointless than before. Some people wondered why the government still insisted on national civil defence drills and evacuation plans when they were clearly not workable. They had to, as E. Larrabee explained in *Harper's* in October 1955.

The ordinary citizen was capable all along of taking a view which government could not take, at least openly. He could afford to be fatalistic about himself.

Government cannot be fatalistic about the lives of its citizens, at least, not openly.¹⁹⁹

While the media continued to complain that the US was not ready to meet a nuclear attack, the citizens had decided for themselves that meeting a nuclear attack was an unrealistic goal. By the end of the decade civil defence was an issue intellectual journals sometimes raised in order to criticise the government, but the popular journals mostly

¹⁹⁹ E. Larrabee, "On Running for Cover," *Harper's* 211 (October 1955), p24

ignored it. Where civil defence is discussed in the existing literature it is from a policy perspective, and does not take into account public opinion on the matter.

An interesting omission in the journals is the image of children covering under desk during air raid drills. It is alluded to by May and Zinn, and is a typical image of civil defence in the fifties.²⁰⁰ However, it does not appear in the six journals used in this study. A possible reason for this omission is that the people writing the articles at the time were not people who would necessarily be interested in schools. If it was government policy at the time though, one would expect to have seen some articles on the subject.

In the middle of the decade concern began to grow over radioactive fallout. While the problem existed only in the Pacific, where radioactive dust from the both the US and Soviet tests was falling on Japan and other nations in the area, the American public showed little concern. Though the *Lucky Dragon* incident proved that the unexpected could happen during testing, it was not American fishermen caught in the fallout nor was it the American fish market that almost collapsed. It was only when testing in the continental US was shown to release deadly radioactive elements into the environment that Americans began to become concerned, for themselves. People were concerned for their safety and the safety of their families. The biggest fear was fear of the unknown; nobody could say with any certainty what the long term effects of radiation would be. More awareness only exacerbated the problem, as despite their best efforts scientists could not allay people's fears.

The radiation threat served another purpose however. During the 1950s it was considered unpatriotic to question the government, particularly policies which concerned

²⁰⁰ May, p106; Zinn, p428

the Soviet Union. Nuclear weapons were billed as the answer to the threat to US security posed by the Soviet Union. The shadow of McCarthy still lingered. Despite his censure by Congress in 1954 many people still thought in terms of them and us. If you were not one hundred percent behind the US then you must be a communist. Through fears of radiation, however, people found a patriotic way to protest. When they called for an end to nuclear testing it was not for world peace, or concern over other nations caught in the radioactive fallout, but for American children. There was only one thing more important than the American way of life: the survival of the American way of life. The radioactive fallout enabled those who were against nuclear weapons to call for an end to testing while still remaining patriotic. Again, public opinion is ignored when radioactivity in the period is discussed in the existing literature. Instead the focus is on the environmental and medical aspects of the issue. The level of popular protest is also overshadowed by the protests of the sixties.

Accidental warfare was not a concern for most people during the 1950s. The prospect of either US or Soviet bombers accidentally dropping their nuclear payload over enemy soil seemed remote. Being tricked into a nuclear war by a third party seemed even more unlikely, as the only other nuclear countries, Britain and France, were still recovering from the devastation of World War II. They knew only too well the damage bombs could cause, and would not wish to start another war. The fear of industrial accidents, either from the new nuclear power plants or from factories which used radioactive isotopes in their production process, was greater than the fear of accidental war; they were more real because they involved radiation being spread into the community, and accidents had actually happened. As with civil defence and the threat of

nuclear attack, the idea of an accidental war was difficult for the general public to imagine.

There was also reasoning that even if a bomb was accidentally dropped, the US had SAC bombers in the air twenty-four hours a day, ready to be deployed at any time. This meant they had time to determine, through diplomatic channels, whether or not the incident was indeed an accident, without having to worry about a second attack destroying their ability to retaliate. It was the advent of ICBMs, at the end of the decade, which began to change people's opinions. The missiles short launch and delivery time meant that negotiation time was dramatically reduced. The American public were faced with the possibility that mid-level military personnel might be put in the position where they had to decide whether or not to launch a nuclear attack. The intellectual journals led the way on the subject of accidental warfare, but as the decade ended the popular journals had begun to see the risks too.

While the prominence of the first three issues discussed in this study came and went as the decade progressed, one issue was constant, at least for some people. The nuclear arms race and international control of nuclear weapons and material was an issue that concerned primarily the intellectual journals. While the US was spending a significant amount on nuclear weapons, it had not yet become a weapon that the media would use to criticise the government. The US was also still ostensibly in the lead. The subject of international control appeared rarely in the popular media, unless it was as propaganda when the Soviet Union rejected a US proposal.

It is curious that the American public were not interested in international control, given their fear of having to survive a surprise attack, the radioactive fallout from nuclear

tests, and an accidental war. However, nuclear weapons offered them something in return – protection from the Soviet Union. In almost all of the journals used in the study, the exception being the *Nation*, the Soviet Union was portrayed as an evil, power hungry empire, that was just waiting for an opportunity to attack. The US needed to have strong defences in order to deter them. The Soviet Union could try and destroy them, and they may cause a lot of deaths and damage, but the American people were strong, and they would fight back with a massive retaliatory force.

The pro-American sentiment is strong in all of the journals used in this study, with perhaps the exception of the *Nation* which was more even handed. This was especially true of *Time* and *Newsweek*. Both were usually supportive of the government, and tried to find the good side to every story. While *Newsweek* was pro-American though, *Time* took it one step further and was anti-everyone else. This was especially obvious when they were reporting on the Soviet Union or Japan. A typical example of this attitude is an article from March 1956, entitled ‘Round-the-world Tracer’. *Time* reported how Japanese scientists were using the radioactive dust clouds that formed over Japan to trace wind patterns.

Now Japanese scientists are waiting for the U.S. nuclear tests scheduled for April in mid-Pacific. Any labelled air masses that they send to Japan will be welcomed (meteorologically at least), whether they travel direct or by circumnavigation.²⁰¹ Judging by the tone of the article, *Time* seemed to be wondering what the Japanese people had to complain about regarding the radioactive dust clouds that formed over their nation after every US and Soviet nuclear test. Their scientists after all were gaining valuable knowledge from the clouds, and is that not important? It does not matter that your nation is continually covered by radioactive dust; you are learning important

²⁰¹ "Round-the-World Tracer," *Time* 67 (12 March 1956)

technical knowledge that could not be learned otherwise. This attitude is more than unsympathetic to the Japanese plight, it is almost callous. The atrocity of Pearl Harbor was a long way from being forgiven.

Mistrust of the Soviet Union was rife in the popular media. Fear that they would attack overrode any objections to nuclear weapons. The Gallup opinion polls reflect that for most of the decade Americans thought it only a matter of time before the Soviet Union attacked the US.

The Cold War is still seen as a political and military subject, leaving the social impact on the home front untouched for the most part. The reaction of the public to any policy has an impact on later policies. With civil defence, for example, had the public embraced the idea fully at the beginning of the decade would Congress have been willing to award more funding to the FCDA? If the *Lucky Dragon* fishing trawler had not been in the vicinity of Bikini Atoll on 1st March 1954, would the federal government have announced so quickly that they had a fully working H-bomb? This study has shown that there is much more to the era than foreign policy and weapons technology.

The fifties are usually seen as a relatively calm period in US history, between the war years and the explosion of popular protest in the sixties. Even though the US was embroiled in a major war in Korea at the beginning of the decade, that war has been overshadowed by Vietnam. This study has shown, however, that the seeds of discontent were sown in the fifties. Frustration at the lack of government response grew throughout the decade. It has also shown that the fifties should not be viewed as one solid block of time. The nuclear issues discussed came to prominence at different points during the decade, changing with society itself.

BIBLIOGRAPHY

Harper's Magazine

- Alsop, J. and S. Alsop. "We Accuse!" *Harper's* 209 (October 1954): 25-45.
- Block, jr, P. "Fetish of Atomic Secrecy." *Harper's* 207 (August 1953): 31-37.
- Brodie, B. "Strategy Hits a Dead End." *Harper's* 211 (October 1955): 33-37.
- Cassels, L. "Atomic Engines, When and How." *Harper's* 200 (June 1950): 50-56.
- "Fetish of Atomic Secrecy." *Harper's* 207 (August 1953): 6+.
- "False (?) Alarm, Schenectady, N.Y." *Harper's* 215 (November 1957): 24+.
- "Harper's" [<http://www.Harper'ss.org>].
- Kennan G. "Chance to Withdraw Our Troops in Europe." *Harper's* 216 (February 1958): 34-41.
- Lapp, R.E. "Voyage of the Lucky Dragon: Part 2." *Harper's* 216 (January 1958): 48-55.
- Lapp, R.E. "Voyage of the Lucky Dragon: Part 1." *Harper's* 215 (December 1957): 27-36.
- _____. "Voyage of the Lucky Dragon: Part 3." *Harper's* 216 (February 1958): 72-79.
- Larrabee, E. "On Running for Cover." *Harper's* 211 (October 1955): 24-6.
- McMillan, G. "Big Botch At Savannah River." *Harper's* 207 (November 1953): 39-44.
- Meryman Jr., R.S. "Guardians." *Harper's* 211 (October 1955): 37-44.
- Morse, P.M. "Don't Lock the Laboratory Door." *Harper's* 198 (April 1949): 102.
- Moses, R. "Civil Defense Fiasco." *Harper's* 215 (November 1957): 29-34.
- _____. "Civil Defense Fiasco: Reply." *Harper's* 216 (January 1958): 6.
- _____. "Civil Defense Fiasco: Reply." *Harper's* 216 (February 1958): 8.
- Thirring, H. "Noiseless Weapon." *Harper's* 211 (October 1955): 44-6.
- "We Accuse!" *Harper's* 209 (October 1954): 14.
- Wendt, G. "New Job For The Atom." *Harper's* 198 (May 1949): 21-27.

The Nation

- 'Espinasse, P.G. "Biology and the Bomb." *The Nation* 180 (25 June 1955): 579-81.

"AECs Can of Worms." *The Nation* 190 (20 February 1960): 158.

Aiken, F. "Message From a Small Power." *The Nation* 187 (29 November 1958): 403-5.

Allen, S. "Corporate Heroism; Advertisement of Warner & Swasey. Reply." *The Nation* 191 (15 October 1960): inside cover.

Altschul, F. "Comment on an Ad; With Editorial Comment." *The Nation* 189 (3 October 1959): inside cover, 182.

Alvarez del Vayo, J. "Back Door: Political Committee..." *The Nation* 179 (30 October 1954): 375.

_____. "Bomb and the U.N." *The Nation* 169 (8 October 1949): 341-2.

_____. "H-Bomb and Diplomacy." *The Nation* 178 (10 April 1954): 293-94.

_____. "H-Bomb Impasse." *The Nation* 178 (1 May 1954): 379.

_____. "Pooling the Atom." *The Nation* 179 (20 November 1954): 436.

_____. "Three Atomic Truths." *The Nation* 170 (8 April 1950): 323.

_____. "Vishinsky's Offer." *The Nation* 174 (19 January 1952): 52-3.

Anderson, C.P. "Atomic Energy: Seven Key Issues." *The Nation* 188 (4 April 1959): 288-91.

"Armaments Control: A New Start? Senate Disarmament Subcommittee." *The Nation* 182 (17 March 1956): 209-10.

Arnold, C. "Power for Al; Meaning of Geneva." *The Nation* 181 (27 August 1955): 167-9.

"Assist From Mr Khrushchev." *The Nation* 187 (8 November 1958): 329.

"Atom and the Journalists." *The Nation* 187 (6 September 1958): 103.

"Atom Fallout. Reply." *The Nation* 188 (11 April 1959): 306-7.

"Atomic Conference Called by the The Nation Associates." *The Nation* 170 (22 April 1950): 360.

"Atomic Energy's Scientific Accomplishment." *The Nation* 169 (10 December 1949): 559.

"Atomic Publicity." *The Nation* 188 (4 April 1959): 285-6.

"Atomic Sewer." *The Nation* 190 (6 February 1960): 112.

"Atomitis; American Nuclear Outposts." *The Nation* 184 (4 May 1957): 381.

"Atoms for Peace Forum." *The Nation* 180 (28 May 1955): 453.

"Atoms for Peace; Symposium." *The Nation* 180 (18 June 1955): 520-48.

"Ban the Bomb Tests." *The Nation* 182 (11 February 1956): 101.

Beckerly, J.G. "Uranium Curtain." *The Nation* 180 (18 June 1955): 549-51.

Bernstein, V.H. "Atom in the U.N." *The Nation* 180 (18 June 1955): 564-8.

"Bias of the AEC." *The Nation* 188 (9 May 1959): 417.

Bird, D. "Atom Blasts Can Be Spotted." *The Nation* 186 (12 April 1958): 319-20.

Birrell, N.J. "How Much Can We Stand?" *The Nation* 181 (23 July 1955): 69.

Blackett, P.M.S. "H-Bomb Policy and Restive Britain." *The Nation* 179 (11 September 1954): 205-07.

Bradley, D. "Only Defense Is Peace." *The Nation* 170 (8 April 1950): 483-4.

"Brilliant Sunrise." *The Nation* 178 (27 March 1954): 249.

Bronowski, J. "Dilemma of the Scientist." *The Nation* 179 (14 August 1954): 130-32.

Brown, H.S. "Foreign Policy for the Atomic Era." *The Nation* 170 (20 May 1950): 481-3.

_____. "Meaning of Atomic War." *The Nation* 171 (16 December 1950): 621.

Brown, Harrison S. "Power From the Atom; Excerpt From Address, June 19 1955." *The Nation* 181 (9 July 1955): 42.

Bussey, G. "America's Responsibility." *The Nation* 178 (1 May 1954): 392.

Calder, R. "Cost of Atomic Secrecy." *The Nation* 177 (17 October 1953): 303-06.

Calder, Ricthie. "Naked Atom." *The Nation* 181 (17 September 1955): 239-41.

Cavers, D. "Weapons or Welfare?" *The Nation* 180 (18 June 1955): 556-8.

Cavers, D.F. "Our Split Atomic Policy." *The Nation* 182 (31 March 1956): 256-8.

"Certain Allies, Such As..." *The Nation* 190 (13 February 1960): 130.

"China and the Bomb." *The Nation* 190 (7 May 1960): 395.

"Churchill At the White House." *The Nation* 178 (26 June 1954): 533-34.

"Citizens or Personnel? Accidentally Dropped Bomb." *The Nation* 186 (22 March 1958): 245.

"Civil Defense Is Dead." *The Nation* 185 (28 September 1957): 186.

"Civil Defense: A Collison of Airliners Over Brooklyn." *The Nation* 191 (31 December 1960): 513-14.

Clapp, G.R. "Dixon-Yates Deal." *The Nation* 179 (2 October 1954): 286-87.

"Collective Action for What?" *The Nation* 178 (17 April 1954): 317.

Condon, E.U. "Bombs for Peace Hypocrisy; Project Plowshare." *The Nation* 187 (22 November 1958): 376-7.

"Corporate Heroism; Advertisement of Warner & Swasey." *The Nation* 191 (17 September 1960): 142.

"Dangerous Thoughts; Deadly Secret." *The Nation* 170 (10 June 1950): 576.

Davis, W.H. "Challenge to America: The Atomic Crossroads." *The Nation* 183 (15 September 1956): 214-17.

"Deadlines to Remember." *The Nation* 189 (4 July 1959): 1.

Dean, G.E. "America and the Atom; Excerpt From Address June 19, 1955." *The Nation* 181 (9 July 1955): 33-5.

Dempson, P. and T.A. Kerr. "Biggest Reactor, and Canada's Own." *The Nation* 177 (7 November 1953): 372-73.

DesChamps, G. "Cape Cod's Atomic Park." *The Nation* 190 (25 June 1960): 548-51.

_____. "Hot Dumping Off Boston; With Editorial Comment." *The Nation* 189 (19 September 1959): 142-6.

"Disarmament Can't Wait." *The Nation* 188 (7 February 1959): 110-11.

Dreher, G. "War by Accident." *The Nation* 187 (6 September 1958): 105-9.

Eaton, C.S. "Call for a Test Ban." *The Nation* 190 (19 March 1960): inside cover.

editorial. "Grab for the Atom." *The Nation* 176 (6 June 1953): 466.

Engel, L. "Science Notebook." *The Nation* 169 (26 November 1949): 518.

_____. "Science Notebook." *The Nation* 171 (19 August 1950): 169.

_____. "Science Notebook." *The Nation* 173 (15 December 1951): 526.

"First Step." *The Nation* 183 (18 August 1956): 129.

Fleming, D.F. "Eisenhower's Quest for Peace." *The Nation* 191 (31 December 1960): 521-5.

Freedman, M. "Washington In Focus." *The Nation* 180 (9 April 1955): 299-300.

Friedman, R. "Next Door to Ground Zero." *The Nation* 185 (10 October 1957): 256-9.

Fuchs, L.H. "Disarmament; Facts Vs. Propaganda; Proposals Presented to the United The Nations." *The Nation* 173 (8 December 1951): 500-2.

"Fullest Possible Consultation." *The Nation* 191 (26 November 1960): 406-7.

Hoegh, L.A. "Charade Of Civil Defense: Reply." *The Nation* 191 (20 August 1960): inside cover.

"Hole in the Theory." *The Nation* 190 (16 January 1960): 42-3.

"Hot Cargo." *The Nation* 191 (3 December 1960): 426-7.

"Implications of Atomic War; Symposium." *The Nation* 170 (20 May 1950): 481-6.

"In Wandering Mazes Lost." *The Nation* 186 (19 April 1958): 335.

Inglis, D.R. "H-Bomb Control." *The Nation* 179 (24 July 1954): 67-70.

Isard, W. "Uses and Costs of Atomic Power." *The Nation* 171 (16 December 1950): 657-9.

"It Won't Wash Mr President; Where Do We Go From Here?" *The Nation* 186 (12 April 1958): 305-6.

Josephson, M. "Politics of Atomic Stalemate, by P.M.S. Blackett. Review." *The Nation* 184 (26 January 1957): 82-3.

Joyce, J.A. "Moral Deterrent." *The Nation* 185 (6 July 1957): 11-13.

Kirchwey, F. "Explosion of Policy." *The Nation* 169 (1 October 1949): 309-11.

_____. "Some Other Choices." *The Nation* 170 (11 February 1950): 120-21.

"Krushchev and the H-Bomb." *The Nation* 182 (25 February 1956): 149.

Lamont C., and M.I. Lamont. "Letter to Bulganin; Proposal for Cessation of H-Bomb Tests." *The Nation* 186 (25 January 1958): inside cover.

"Last Word?" *The Nation* 183 (27 October 1956): 337.

Leghorn, R.S. "Mirage Fortress." *The Nation* 182 (4 February 1956): 89-91.

Levine, H. "Whose Atom Is It?" *The Nation* 179 (2 October 1954): 278-79.

Lort-Phillips, P. "Useless Weapon." *The Nation* 189 (15 August 1959): 71-3.

Marine G. "Still No Place To Hide." *The Nation* 180 (5 February 1955): 116-18.

Marine, G. "Our Stupid Civil Defense." *The Nation* 184 (9 February 1957): 111-15.

_____. "Profit in Atoms." *The Nation* 180 (7 May 1955): 391-3.

McCourt, G. "Test Case on Atomic Waste." *The Nation* 189 (1 August 1959): 43-5.

McDonald, J.E. "Cities Into Targets." *The Nation* 190 (21 May 1960): 436-8.

McWilliams, C. "Perils Unknown." *The Nation* 180 (9 April 1955): 302-6.

Meacham, S. "Needed: The Voice of the People." *The Nation* 188 (21 February 1959): 159-62.

Meiser, S. "Charade Of Civil Defense." *The Nation* 190 (11 June 1960): 507-10.

"Menace of Skepticism." *The Nation* 186 (10 May 1958): 402.

Millis, W. "Arms Race; Count-Down for Disaster." *The Nation* 186 (15 February 1958): 132-5.

"Missiles and Misgivings." *The Nation* 187 (29 November 1958): 397.

Moch, J. "Banning the H-Bomb." *The Nation* 178 (15 May 1954): 418-19.

Morris, I.V. "Poisoning the Sahara." *The Nation* 189 (5 September 1959): 110-11.

"Mr Eienhower's Proposal." *The Nation* 177 (19 December 1953): 538-39.

Muller, H.J. "Diaster by Instalments." *The Nation* 180 (9 April 1955): 304.

Muste, A.J. "Moral Limits of War." *The Nation* 181 (6 August 1955): 117.

The The Nation. "The The Nation." [<http://www.theThe Nation.com/about>]. 1865.

"News Behind the Headlines." *The Nation* 190 (20 February 1960): 157.

Nishiwaki, Y. "Death in the Rain." *The Nation* 181 (6 August 1955): 111-14.

"No Specific Therapy; InterThe National Conference of Scientists, Tokyo." *The Nation* 181 (6 August 1955): 105.

"Non-Existent Average." *The Nation* 185 (7 September 1957): 102.

"Obsolescence of Slogans." *The Nation* 186 (17 May 1958): 429.

Olds, L. "Grab for the Atom." *The Nation* 176 (6 June 1953): 478-81.

_____. "Great Atomic Giveaway." *The Nation* 179 (10 July 1954): 30-32.

_____. "People's Atom." *The Nation* 179 (17 July 1954): 50-53.

_____. "Report on the Atom, by G. Dean." *The Nation* 178 (9 January 1954): 33-35.

_____. "Struggle for Power." *The Nation* 180 (18 June 1955): 551-3.

"Oppenheimer Case." *The Nation* 178 (1 May 1954): 373-79.

Pauling, L. "Fact and Fable of Fallout." *The Nation* 186 (14 June 1958): 537-42.

"Peace Gap." *The Nation* 190 (2 April 1960): 285.

"Peak of Destruction." *The Nation* 176 (24 January 1953): 62.

"Pentagon Wills It." *The Nation* 190 (27 February 1960): 177.

Phillips, T.R. "Atom in War; Excerpt From Address, June 19 1955." *The Nation* 181 (9 July 1955): 38-40.

Pickett, C.E. "Challenge to Americ; Reply." *The Nation* 183 (13 October 1956): inside cover.

"Politics and the Bomb; Joint Atomic Energy Committee." *The Nation* 190 (7 May 1960): 394.

Porter, C.O. "Accident or Agression?" *The Nation* 190 (5 March 1960): 202-5.

"Possibilities of Agreement on Atomic Weapons; Symposium." *The Nation* 170 (20 May 1950): 498-502.

"Potential of Atomic Energy for Peace-Time Use; Symposium." *The Nation* 170 (20 May 1950): 495-8.

Potter, F.F. "McMahon Five-Year Plan." *The Nation* 182 (28 January 1956): 80.

Powell, C.F. "Greatest Debate in History." *The Nation* 179 (24 July 1954): 69.

"Pro Patria Mori." *The Nation* 190 (30 January 1960): 89.

"Public and the AEC." *The Nation* 189 (24 October 1959): 242.

"Race for Markets." *The Nation* 181 (20 August 1955): 145-6.

Reynolds, E.L. "Forbidden Voyage; Sailing Into Nuclear-Testing Zone." *The Nation* 187 (15 November 1958): 358-60+.

Ridenour, Jr., L.N. "Control Is Not Enough." *The Nation* 170 (20 May 1950): 509.

Rolin, H. "Outlaw the First Bomb." *The Nation* 170 (20 May 1950): 507-8.

Roshwald, M. "Training the Nuclear Warrior." *The Nation* 190 (2 April 1960): 287-9.

Rossi, M. "Algeria At the U.N." *The Nation* 189 (19 September 1959): 146-8.

Russell, B. "Choice Is Ours." *The Nation* 180 (18 June 1955): 515-17.

"Scientists and Diplomats; Geneva in October." *The Nation* 187 (25 October 1958): 281.

"Shape of Things." *The Nation* 169 (19 November 1949): 481.

Siekevitz, P. "Liasion for Survival; Scientists' Committee for Radiation Information, New York City; With Editorial Comment." *The Nation* 189 (26 September 1959): 163-5.

Singer, J.D. "Surprise Attack." *The Nation* 190 (30 January 1960): 91-5.

"Sneering, Snide, Smart, Smug." *The Nation* 184 (23 March 1957): 246.

"Sowing the Dragon's Teeth; Nuclear-Arms Information." *The Nation* 186 (3 May 1958): 382.

"Straws in the Technological Wind." *The Nation* 191 (24 December 1960): 495.

"Sunbeam." *The Nation* 187 (22 November 1958): 369-70.

Swing, R. "Prescription for Survival." *The Nation* 170 (18 February 1950): 151-54.

Taylor, T. "Trouble Is Fear." *The Nation* 170 (20 May 1950): 506-7.

"Teller and Bethe." *The Nation* 191 (3 September 1960): 102.

"Teller Is Always Right." *The Nation* 188 (14 March 1959): 219.

"They Feel It in Their Bones; Protest Groups." *The Nation* 186 (19 April 1958): 334.

"Thoughts on the H-Bomb." *The Nation* 175 (29 November 1952): 477-8.

"Tough-Minded." *The Nation* 188 (25 April 1959): 353.

Ubell, E. "Atoms in the Family, by L. Fermi. Review." *The Nation* 179 (27 November 1954): 467-68.

Waddington, C.H. "Atoms and Genes." *The Nation* 183 (18 August 1956): 137-40.

_____. "Peril From a-Dust; With Editorial Comment." *The Nation* 180 (19 February 1955): 149, 155-7.

"Waiting for Dulles." *The Nation* 184 (4 May 1957): 382.

Wakefield, D. "Beachhead on 42nd Street." *The Nation* 188 (25 April 1959): 357-9.

Watson, M.S. "Can We Limit an a-War? Lessons of Sagebrush; With Editorial Comment." *The Nation* 181 (24 December 1955): 547, 550-1.

Weideman, E. "Ashes of Death; First H-Bomb Victims." *The Nation* 179 (9 October 1954): 308-09.

Werner, M. "Atomic Strategy Is Obsolete." *The Nation* 169 (17 December 1949): 592-4.

"What Price Radiation Safety?" *The Nation* 184 (16 February 1957): 130.

Wilson, H.H. "Program for Insecurity." *The Nation* 179 (10 July 1954): 23.

Winnett, R. "Defense Problem:1960." *The Nation* 179 (20 November 1954): 444-45.

"Wisdom of the Defeated." *The Nation* 184 (27 April 1957): 353.

Woodbury, D.O. "Surveying the Field." *The Nation* 180 (18 June 1955): 533-6.

Wyant, Jr., W.K. "50,000 Baby Teeth; Greater St Louis Citizens Committee for Nuclear Information." *The Nation* 188 (13 June 1959): 535-7.

"Year of Decision." *The Nation* 176 (18 April 1953): 317.

"Year, or Forever?" *The Nation* 187 (15 November 1958): 349.

Newsweek

- "A-War by Accident?" *Newsweek* 51 (24 March 1958): 60+.
- "At The Heart Of Things." *Newsweek* 45 (27 June 1955): 54.
- "Atomic Antidotes." *Newsweek* 41 (18 May 1953): 104-6.
- "Atomic Body Damage." *Newsweek* 39 (5 May 1952): 97.
- "Atomic Control: Down to Brass Tacks?" *Newsweek* 52 (14 July 1958): 35-6.
- "Atomic Eye Injury." *Newsweek* 34 (12 December 1949): 51.
- "Atomic Eye Opener." *Newsweek* 38 (23 July 1951): 82.
- "Atomic Fisherman." *Newsweek* 44 (4 October 1954): 40.
- "Atomic Light On The Desert An Answers to Fearful Questions People Ask." *Newsweek* 45 (21 March 1955): 30-1.
- "Atomic Safeguards." *Newsweek* 47 (30 January 1953): 89.
- "Beyond Fancy." *Newsweek* 45 (21 February 1955): 26-8.
- "Bill for CD." *Newsweek* 41 (30 March 1953): 31-2.
- "Dead Men's Discovery." *Newsweek* 54 (16 November 1959): 77.
- "Defense Against Atom-Bomb Blitz? None Yet." *Newsweek* 34 (14 November 1949): 30.
- "Doomsday Warning." *Newsweek* 42 (21 September 1953): 61.
- "Ducking For Cover; Operation Alert 1956." *Newsweek* 48 (30 July 1956): 28.
- "Eight At Y-12, Oak Ridge, The National Laboratory." *Newsweek* 51 (30 June 1958): 74.
- "Facts Of A Farce." *Newsweek* 45 (28 February 1955): 20.
- "H-Bomb in South Carolina." *Newsweek* 41 (15 February 1953): 78-80.
- "H-Bomb Victims." *Newsweek* 44 (23 August 1954): 74.
- "Honest Mistake." *Newsweek* 51 (24 March 1958): 37.
- "Hydrogen Age, Whither America?" *Newsweek* 35 (13 February 1950): 17.
- "In the Event..." *Newsweek* 35 (27 March 1950): 50.

Lewis, Jr., Fulton. "Fizzled Fuse." *Newsweek* 34 (19 December 1949): 14-16.

Lindley, E.K. "Control of the H-Bomb." *Newsweek* 43 (12 April 1954): 46.

"Making The Jitters Pay." *Newsweek* (19 April 1954): 47.

"Measure of Destruction; Operation Floodout." *Newsweek* 44 (30 August 1954): 20+.

"Money Isn't Enough." *Newsweek* (12 April 1954): 42.

"No Answers Available." *Newsweek* 36 (16 October 1950): 25.

"No Take-to-the-Hills." *Newsweek* 36 (11 December 1950): 25.

Northway, H.E. "Lepers of Our Times." *Newsweek* 49 (13 May 1957): 36.

"Panic After Sunrise." *Newsweek* (29 March 1954): 23.

"Panic Button." *Newsweek* 42 (5 October 1953): 20.

"Plans and Uncertainties." *Newsweek* 36 (18 December 1950): 19.

"Sen. McMahon Gives the Answers." *Newsweek* 37 (4 June 1951): 20-1.

"So Much To Be Done." *Newsweek* 45 (27 June 1955): 21-22.

"There Isn't Any." *Newsweek* 36 (31 July 1950): 31-2.

"To Make or Not to Make." *Newsweek* 35 (6 February 1950): 18-19.

"Victory Won, a Greater Victory Hoped for." *Newsweek* 42 (21 December 1953): 32+.

"Warning." *Newsweek* 44 (5 July 1954): 73.

"What Stalin's a-Bomb Means to the West and Its Defense." *Newsweek* 38 (15 October 1951): 23-4.

"Why We'll Make the H-Bomb." *Newsweek* 35 (13 February 1950): 19-20.

The New Republic

"After a Test Ban." *The New Republic* 139 (1 September 1958): 3-4.

"UN and the Atom." *The New Republic* 121 (21 November 1949): 8.

"Atomic Peace and Atomic Politics." *The New Republic* 122 (17 April 1950): 5-13.

"Atomic Test Ban." *The New Republic* 139 (10 November 1958): 4.

"Ban the Dirty Bomb." *The New Republic* 136 (29 April 1957): 3-4.

"The Bang Gets Bigger, Why?" *The New Republic* 130 (5 April 1954): 7.

"Banning Bomb Tests." *The New Republic* 134 (7 May 1956): 3-4.

Churchill, Winston, with editorial comments by M. Straight. "Defense Through Deterrents; Address, March 1, 1955." *The New Republic* 132 (14 March 1955): 7-11.

"Civil Defense Begins." *The New Republic* 123 (25 December 1950): 9.

"Defending the U.S. Against Atomic Attack; Symposium." *The New Republic* 129 (21 September 1953): 7-14.

"Detecting Nuclear Tests." *The New Republic* 138 (24 March 1958): 5-6.

"Disarmament Talks." 138 (19 May 1958): 8.

"Disarmament: How to Get Off Dead-Center." *The New Republic* 125 (3 December 1951): 5-7.

"Fear of the H-Bomb." *The New Republic* 131 (27 December 1954): 4.

Fuller, H. "Detecting Atomic Tests." *The New Republic* 140 (9 March 1959): 11-14.

Gorrell, F. "Liberation and the H-Bomb." *The New Republic* 129 (26 October 1953): 6.

Halle, L.J. "Means and Ends; A Dialogue on Push-Button War." *The New Republic* 142 (15 February 1960): 9-10.

Hanson, H. "If The Enemy Did Attack." *The New Republic* 134 (27 February 1956): 14-15.

Healey, D. "Tactical Atomic Defense." *The New Republic* 134 (9 January 1956): 8-9.

"How Much Fallout?" *The New Republic* 140 (23 March 1959): 5.

"The Hydrogen Bomb." *The New Republic* 122 (13 February 1950): 5-8.

"The Hydrogen Bomb." *The New Republic* 127 (24 November 1952): 7.

Ickes, H.L. "Doing, or Being Done." *The New Republic* 121 (14 November 1949): 16.

Inglis, D.R. "Why I Am for Stevenson." *The New Republic* 135 (22 October 1956): 16.

"It Ought to Be Stopped." *The New Republic* 142 (11 April 1960): 3-5.

Johnson, G.W. "Why I Am for Stevenson (Reply)." *The New Republic* 135 (29 October 1956): 10.

"Just a Little Fallout." *The New Republic* 140 (18 May 1959): 5.

Kihss, P. "Remember the Atom!" *The New Republic* 123 (23 October 1950): 13-14.

Lapp, R.E. "Radioactive Fallout." *The New Republic* 132 (14 February 1955): 8-12.

Metz, H. "UN Juggles the Atom." *The New Republic* 121 (29 August 1949): 13-15.

"Mistakes Will Happen: Accidentally Dropped Bomb and Bomb Experimentally Exploded Underground." *The New Republic* 138 (24 March 1958): 2.

"Monitoring Nuclear Tests." *The New Republic* 140 (26 January 1959): 6-7.

"Moratorium on Testing." 134 (18 June 1956): 6-7.

Neuman, W.F. "Thus Spake the Third Magician; A Fable." *The New Republic* 138 (10 February 1958): 8-11.

"New Era in Destructive Capacity." *The New Republic* 132 (28 February 1955): 3.

"Off Dead Center; A. Stevenson's Proposal." *The New Republic* 135 (8 October 1956): 5-6.

"On Dead Center." *The New Republic* 135 (15 October 1956): 2.

"One of Our Islands Is Missing." *The New Republic* 131 (26 July 1954): 5.

Phillips, T.R. "The National Defense: We Rely on Nuclear Weapons." *The New Republic* 134 (16 January 1956): 12-14.

"President's Atomic Plan." *The New Republic* 129 (21 December 1953): 5-8.

"Protest of the Phoenix." *The New Republic* 141 (14 September 1959): 5-6.

Rabinowitch, E. "Realities of Atom Bomb Defense." *The New Republic* 123 (25 September 1950): 20-22.

"Radiation and Mutation." *The New Republic* 132 (9 May 1955): 6.

"Radioactive Recklessness." *The New Republic* 135 (9 July 1956): 4.

"Real Power of the Super-Bomb; Radioactive Fell-Out." *The New Republic* 131 (8 November 1954): 3-4.

"Resuming Nuclear Tests." *The New Republic* 143 (24 October 1960): 7.

Sawyer, R. "Power of Admiral Strauss." *The New Republic* 130 (31 May 1954): 14-15.

Schubert, J, and R.E. Lapp. "Raditation Dangers: Excerpt From Raditation: What It Is and How It Affects You, with Editorial Commen." *The New Republic* 136 (20 May 1957): 8-13.

"Shelter Building; Operation Alert." *The New Republic* 136 (6 August 1956): 6.

"Still Some Doubts; Congressional Inquiry Into Nuclear Bomb Testing." *The New Republic* 136 (17 June 1957): 3-4.

Straight, M. "Ten-Month Silence." *The New Republic* 132 (7 March 1955): 8-11.

"Surprise Attack." *The New Republic* 142 (29 February 1960): 3-5.

Szilard, L. "America, Russia, and the Bomb." *The New Republic* 121 (31 October 1949): 11-13.

Thomson, G. "Out of Control." *The New Republic* 132 (14 March 1955): 12.

"Toward a Test Ban." *The New Republic* 140 (25 May 1959): 3.

"Two Scorpions in a Bottle." *The New Republic* 129 (24 August 1953): 7-8.

"Vishinsky's New Offer, Transformation or Trick?" *The New Republic* 126 (21 January 1952): 5.

"Walking Blind." *The New Republic* 134 (25 June 1956): 5-6.

Waller, F. "None For The Road." *The New Republic* 136 (11 March 1957): 20.

"When the Wind Blows." *The New Republic* 135 (22 October 1956): 2.

"Why the Scientists Opposed the H-Bomb?" *The New Republic* 130 (26 April 1954): 13-15.

"Within Reach of a Ban." *The New Republic* 142 (28 March 1960): 5-6.

Reader's Digest

Alsop, S. and R.E. Lapp. "Strange Death of Louis Slotin." *Reader's Digest* 64 (June 1954): 33-37.

Alsop, S.J.O. "Let's Stop Talking Nonsense About Fallout." *Reader's Digest* 77 (October 1960): 85-87.

Blank, J.P. "Atomic Tragedy in Texas." *Reader's Digest* 71 (October 1957): 101-06.

Bronowski, J. "ABC of the Atom." *Reader's Digest* 60 (February 1952): 25-29.

Brown, A. and E. Teller (eds). "How Nuclear Blasts Can Be Used for Peace; Project Plowshare." *Reader's Digest* 74 (May 1959): 108-10.

Buck, P.S. "The Bomb, Did We Have to Drop It?" *Reader's Digest* 75 (August 1959): 111-15.

Bush, V. "Modern Arms and Free Men; Excerpts." *Reader's Digest* 56 (February 1950): 151-68.

Dodd, T.J. "Why We Must Repeal the Ban on Nuclear Testing; Adaptation of Address, May 12, 1960." *Reader's Digest* 77 (September 1960): 83-89.

"Facts About a-Bomb Fallout." *Reader's Digest* 66 (June 1955): 22-24.

Hard, W. "How to Get Atomic Power Fastest." *Reader's Digest* 64 (March 1954): 68-72.

Jones, P. "Nonsense In Civil Defense." *Reader's Digest* 67 (October 1955): 30-2.

Joseph, J. and J.C.Clark (eds). "I Disarmed the a-Bomb That Wouldn't Explode." *Reader's Digest* 68 (June 1956): 117-20.

Kennan, G.F. "Is War with Russia Inevitable?" *Reader's Digest* 56 (March 1950): 1-9.

Kobler, J. "Gangway for the Atomic Garbage." *Reader's Digest* 72 (April 1958): 244-47.

Lapp, R.E. "New Facts About the Atom Bomb." *Reader's Digest* 55 (July 1949): 16-18.

_____. "Voyage of the Lucky Dragon." *Reader's Digest* 72 (May 1958): 114-20.

Laurence, W.L. "Why There Can Not Be Another War." *Reader's Digest* 69 (November 1956): 98-100.

Manchester, H. "Atomic Power's Biggest Dilemma." *Reader's Digest* 66 (May 1955): 121-24.

_____. "Big Ifs of Atomic Power." *Reader's Digest* 73 (August 1958): 130-32+.

_____. "How to Farm with a Geiger Counter." *Reader's Digest* 68 (April 1956): 191+.

_____. "What Are the Actual Prospects for Atomic Power?" *Reader's Digest* 65 (September 1954): 81-84.

McMahon, B. "Program for Atomic Peace." *Reader's Digest* 56 (May 1950): 111-14.

Monahan, J. and L.L. Strauss (eds). "My Faith in the Atomic Future." *Reader's Digest* 67 (August 1955): 17-21.

Moses, R. "Civil Defense Fiasco." *Reader's Digest* 71 (December 1957): 59-63.

"Our Triple-Threat Atomic Weapons." *Reader's Digest* 58 (April 1951): 29-30.

Palmer, P., A.A. Burke, C.E. LeMay, L.L. Straus (eds). "Soviet Union Vs. U.S.A.; What Are the Facts?" *Reader's Digest* 72 (April 1958): 41-46.

"Promise of Our New Atomic Weapons." *Reader's Digest* 59 (December 1951): 25-29.

Root, L. "Are the Russians Ahead of Us in Nuclear Science?" *Reader's Digest* 68 (June 1956): 27-32.

Schwartz, R. "Atomic Bomb Away." *Reader's Digest* 56 (January 1950): 107-10.

Taylor, H.J. "Inside the H-Bomb Plant." *Reader's Digest* 68 (January 1956): 23-27.

Woodbury, D.O. "Fighting the Wild Atoms At Chalk River." *Reader's Digest* 66 (March 1955): 65-69.

Time

"13th Anniversary." *Time* 72 (18 August 1958): 22.

"A-Bombs for Small Wars." *Time* 69 (4 February 1957): 14.

"Affronts and Finesse." *Time* 72 (7 July 1958): 11.

"Agreement to Talk." *Time* 63 (18 January 1954): 19.

"Ashes of Death; Fortunate Dragon." *Time* 68 (29 March 1954): 17.

"Ashes to Ashes." *Time* 64 (4 October 1954): 32.

"The Atom - the Choice." *Time* 55 (16 January 1950): 13.

"The Atom: What Goes On Here?" *Time* LV, no. 6 (6 February 1950): 5.

"The Atomic Energy Bill." *Time* 64 (2 August 1954): 10.

"The Atomic Future." *Time* 66 (22 August 1955): 49.

"Atomic Poisoned Metals." *Time* 57 (9 April 1951): 84.

"Atoms for Peace." *Time* 70 (15 July 1957): 3.

"Backyard Atomics." *Time* 69 (4 March 1957): 21.

"Barely Time To Duck." *Time* 56 (16 October 1950): 14.

"Beaumont Devastated." *Time* 65 (2 May 1955): 72+.

"Before and After." *Time* 68 (10 December 1956): 79.

"Best Defense? Prayer." *Time* 65 (27 June 1955): 17.

"Beware the Atomic Bootlegger." *Time* 70 (30 December 1957): 16.

"Big Miss At Bikini." *Time* 67 (25 June 1956): 17.

"Biggest Show on Earth?" *Time* 66 (28 November 1955): 17.

"The Biological Species." *Time* 66 (18 July 1955): 17.

"The Bomb." *Time* 46 (20 August 1945): 5.

"Bomb Shelters Away." *Time* 58 (3 September 1951): 22.

"Bonds and Bombs." *Time* 71 (27 January 1958): 21.

"Buzzers Mean Bombs." *Time* 76 (14 November 1960): 24.

"The Case for Security." *Time* 68 (15 October 1956): 24.

"The Choice." *Time* 55 (16 January 1950): 19.

"City Under The Bomb." *Time* 56 (2 October 1950): 12-14.

"The Clarifying Echoes." *Time* 67 (9 January 1956): 9.

"The Clean Bomb." *Time* 70 (8 July 1957): 12.

"Deadly Dust; Plan for Detecting Radioactive ContamiThe Nation." *Time* 57 (1 January 1951): 41.

"Death Sand; Radioactive Poisons." *Time* 56 (7 August 1950): 50.

"Defensive Back-Scratching; Canadian and U.S. Civil Defense Planners." *Time* 56 (4 December 1950): 34.

"DefensiveTests." *Time* 67 (23 January 1956): 46.

"Distant Drums." *Time* 65 (7 March 1955): 10.

"Distorted Commentary." *Time* 63 (5 April 1954): 13.

"Don't Look Now." *Time* 61 (6 March 1953): 44+.

"The Drying Wood." *Time* 64 (2 August 1954): 13.

"The End Is Not Yet!" *Time* 63 (3 May 1954): 26.

"Fallout and C 14." *Time* 64 (6 December 1954): 88.

"Fateful Decision." *Time* 72 (1 September 1958): 7-8.

"Five-Hundred Hiroshimas." *Time* 63 (22 March 1954): 13.

"From the Air." *Time* 67 (2 May 1956): 20.

"The H-Bomb 'Fall-Out' Lesson of the 'Dragon'." *Time* 64 (23 August 1954): 21.

"The H-Bomb Delay." *Time* 64 (8 November 1954): 19.

"H-Bomb Hand Wringing." *Time* 61 (19 January 1953): 14.

"The H-Bomb Navy." *Time* 64 (13 December 1954): 19.

"H-Crater." *Time* 63 (1 March 1954): 34.

"Handy A-Bombs." *Time* 66 (26 September 1955): 62.

"Happy Ending." *Time* 66 (29 August 1955): 48.

"Head In The Sand." *Time* 72 (2 August 1958): 10-11.

"Home Guards?" *Time* 63 (1 March 1954): 16.

"Hot Clams." *Time* 69 (29 April 1957): 60.

"Hot Stuff; Radioactive Dust." *Time* 61 (2 February 1953): 42.

"How Fatal Is the Fall-Out?" *Time* 64 (22 November 1954): 81.

"How Sane the SANE?" *Time* 71 (21 April 1958): 17.

"The Human Pinwheel." *Time* 68 (8 October 1956): 27.

"Hydrogen Dinosaur?" *Time* 55 (15 May 1950): 74.

"Hydrogen Hysteria." *Time* 55 (6 March 1950): 88-9.

"Hydrogen Politics." *Time* 67 (7 May 1956): 34.

"Instrument of Peace." *Time* 67 (5 March 1956): 20.

"Insuring Against Catastrophe." *Time* 67 (19 March 1956): 97.

"The Loaded Question." *Time* 55 (30 January 1950): 11.

"Loft Bombing." *Time* 68 (24 September 1956): 71.

"Mars Bluff." *Time* 71 (24 March 1958): 23.

"Measuring the Bomb." *Time* 68 (2 July 1956): 52.

"Missiles for NATO." *Time* 70 (25 November 1957): 19.

"Nuclear NATO." *Time* 64 (27 December 1954): 13.

"Nuclear Neuroses." *Time* 68 (16 July 1956): 68.

"Offensive Weapon." *Time* 71 (7 April 1958): 17.

"On to Newport." *Time* 70 (22 July 1957): 15.

"One Long Whine." *Time* 64 (26 July 1954): 24-25.

"The Open Road." *Time* 63 (28 June 1954): 14.

"Operation Hardtack." *Time* 71 (21 April 1958): 18.

"Peace and the Bomb." *Time* 64 (9 August 1954): 30.

"Peaceful Atomic Blasting." *Time* 71 (24 March 1958): 62.

"The Peril of Strontium 90." *Time* 69 (6 May 1957): 22.

"Plague of Iridium." *Time* 69 (13 May 1957): 79.

"Playing the H-Bomb." *Time* 68 (22 October 1956): 23.

"Polite Complaint." *Time* 63 (24 May 1954): 16.

"Political Shock Wave." *Time* 71 (24 March 1958): 17.

"Price of Life." *Time* 70 (2 December 1957): 15.

"Priority Under the Bomb." *Time* 68 (3 September 1956): 61.

"Radiation Repair." *Time* 68 (6 August 1956): 32.

"Rays and Bone Marrow." *Time* 73 (13 April 1959): 71.

"Recognition Value: Civil Defense Radio Program." *Time* 61 (2 March 1953): 65.

"Rehersal for Disaster." *Time* 65 (16 May 1955): 20-21.

"Renewal of Leadership." *Time* 67 (19 March 1956): 11.

"Round-the-World Tracer." *Time* 67 (12 March 1956): 71.

"Strontium 90 in Japan." *Time* 69 (11 March 1957): 57.

"Study in Detection." *Time* 71 (2 June 1958): 13.

"Summit and Scientists." *Time* 71 (21 April 1958): 18.

"Take It Easy." *Time* 65 (7 February 1955): 38.

"Toward Geneva." *Time* 71 (23 June 1958): 17.

"Twenty-Two Miles High." *Time* 68 (16 July 1956): 68.

"Two for Space." *Time* 72 (11 August 1958): 14.

"Two Kinds of Tests?" *Time* 71 (12 May 1958): 18.

"U.S. Affairs." *Time* LV, no. 7 (13 February 1950): 7.

"U.S.Affairs." *Time* LV, no. 8 (20 February 1950): 9.

"Underground A-Bomb." *Time* 65 (2 April 1955): 53.

"The US Proposals." *Time* 70 (23 December 1957): 17.

"Waiting for September." *Time* 56 (14 August 1950): 8.

"Way To Survival." *Time* 69 (21 January 1957): 19.

Novels

Bradbury, Ray. "The Highway." In *The Illustrated Man*, 39-42. New York: Bantam, 1972.

Bryant, Peter. *Red Alert*. New York: Ace Books, Inc., 1958.

Frank, Pat. *Alas, Babylon*. 3rd ed. Lippincott, 1959; reprint, New York: Bantam Books, 1988.

Kornbluth, C.M. *Not This August*. 1st ed. Garden City, N.Y.: Doubleday & Company, Inc., 1955.

Miller, Walter M. *A Canticle for Leibowitz*. Philadelphia: J.B. Lippincott Company, 1959.

Shute, Nevil. *On The Beach*. New York: William Morrow and Company, 1957.

Wylie Philip. *Tomorrow*. New York: Rinehart & Company, Inc., 1954.

Wylie, Philip. *The Smuggled Atom Bomb*. U.S.A.: Holt, Rinehart & Winston, 1948; reprint, New York: Lancer Books, 1967.

Other Primary Sources

Amrine, Michael. *The Great Decision: The Secret History of the Atomic Bomb*. 6th ed. New York: G.P. Putnam's Sons, 1959.

Blackett, P.M.S. *Fear, War, and the Bomb: Military and Political Cosequences of Atomic Energy*. 1st ed. New York: Whittlesey House, 1949.

Bradley, David. *No Place To Hide*. 1 ed. Boston: Little, Brown and Company, 1948.

Daniels, Farrington and Thomas M. Smith, eds. *The Challenge of Our Times*. 2nd ed. Minneapolis: Burgess Publishing Company, 1953; reprint, Minneapolis: Burgess Publishing Company, 1954.

Davis, Elmer. *Two Minutes to Midnight*. 1 ed. Indianapolis: The Bobbs-Merrill Company, Inc., 1955.

Gallup, Dr George H. *The Gallup Poll – Volume Three, 1959-1971*. New York: Random House, 1972.

_____. *The Gallup Poll – Volume Two, 1949-1958*. New York: Random House, 1972.

Kissinger, Henry A. *Nuclear Weapons and Foreign Policy*. 1 ed. New York: Harper's & Brothers, 1957.

Lapp, Ralph E. *Voyage of the Lucky Dragon*. Middlesex: Penguin Books Ltd., 1957.

Lilienthal, David E. *This I Do Believe*. 1 ed. New York: Harper's & Brothers Publishers, 1949.

Swing, Raymond. *In The Name of Sanity*. 1 ed. New York: Harper's & Brothers Publishers, 1946.

"United The Nations Charter (Chapter VII)." [<http://www.un.org/aboutun/charter>]. 26 June 1945.

Secondary Sources

Bobbitt, Philip. *Democracy and Deterrence*. 1st ed. London: Macmillan Press Ltd, 1988.

Boyer, Paul. *By The Bomb's Early Light*. 2nd ed. Pantheon Books, 1985; reprint, Chapel Hill: The

- University of North Carolina Press, 1994.
- Broderick, Mick. *Nuclear Movies: A Critical Analysis and Filmography of InterThe National Feature Length Films Dealing With Experimentation, Aliens, Terrorism, Holocaust, and Other Disaster Scenarios, 1914-1989*. 1st ed. Jefferson, North Carolina: McFarland & Company, Inc., Publishers, 1988.
- Burke, Peter, (ed). *New Perspectives on Historical Writing*. 2nd ed. 1992; reprint, University Park, Pennsylvania: The Pennsylvania State University Press, 2001.
- Burleson, Clyde W. *The Day The Bomb Fell On America*. Englewood Cliffs, N.J.: Prentice Hall, Inc., 1978.
- Burns, Grant. *The Atomic Papers: A Citizen's Guide to Selected Books and Articles On The Bomb, The Arms Race, Nuclear Power, The Peace Movement, And Related Issues*. 1 ed. Metuchen, N.J.: The Scarecrow Press, Inc., 1984.
- Diggins, John Patrick. *The Proud Decades: America in War and Peace, 1941-1960*. New York: W.W. Norton & Company, 1989.
- Grantham, Dewey W. *Recent America: The United States Since 1945*. 2nd ed. Wheeling, Illinois: Harlan Davidson, Inc., 1987; reprint, Wheeling, Illinois: Harlan Davidson, Inc., 1988.
- Herken, Gregg. *Brotherhood of the Bomb*. 1st ed. New York: Henry Holt and Company, LLC, 2002.
- Hersey, John. *Hiroshima*. 8th ed. New York: Alfred A. Knopf, 1946; reprint, New York: Alfred A. Knopf, 1965.
- Kahn, Herman. *Thinking About the Unthinkable*. 1st ed. New York: Horizon Press, 1962.
- Kerr, Thomas J. *Civil Defense in the U.S.: Bandaid for a Holocaust?* Boulder, Colorado: Westview Press, 1983.
- Laurence, William L. *Dawn Over Zero: The Story of the Atomic Bomb*. 2nd ed. Alfred A. Knopf, Inc., 1946; reprint, Westport, Connecticut: Greenwood Press, 1977.
- Lilienthal, David E. *The Journals of David E. Lilienthal, Volume III: The Venturesome Years, 1950-1955*. 1st ed. New York: Harper's & Row Publishers, 1966.
- _____. *The Journals of David E. Lilienthal, Volume II: The Atomic Energy Years, 1945-1950*. 1st ed. New York: Harper's & Row Publishers, 1964.
- Lipschutz, Ronnie D. *Cold War Fantasies: Film, Fiction, and Foreign Policy*. 1st ed. Lanham: Rowman & Littlefield Publishers, Inc., 2001.
- Luzin, Nikolai. *Nuclear Strategy and Commons Sense*. English translation ed. Moscow: Progress Publishers, 1981; reprint, Moscow: Progress Publishers, 1981.
- May, Elaine Tyler. *Homeward Bound: American Families in the Cold War Era*. New York: Basic Books, Inc., 1988.

- Oakes, Guy. *The Imaginary War: Civil Defense and American Cold War Culture*. New York: Oxford University Press, 1994.
- Rosenberg, David Alan. "The Origins of Overkill: Nuclear Weapons and America Strategy, 1945-1960." *InterThe National Security* 7, no. 4 (Spring 1983): 3-71.
- Shaheen, Jack G. ed. *Nuclear War Films*. 1st ed. Carbondale and Edwardsville: Southern Illinois University Press, 1978.
- Sharp, Joanne P. *Condensing the Cold War: Reader's Digest and American Identity*. 1 ed. Minneapolis: University of Minnesota Press, 2000.
- The Simpsons* (episode 908). *Lisa the Skeptic*, Fox Television, originally airdate 23rd November 1997
- Tindall, George Brown, and David E. Shi. *America: A Narrative History, Volume Two*. 5th ed. New York: W.W. Norton & Company, 1984; reprint, New York: W.W. Norton & Company, 1999.
- Walker, Martin. *The Cold War*. 2nd ed. London: Fourth Estate Ltd, 1993; reprint, London: Vintage, 1994.
- Winkler, Allan M. *Life Under A Cloud*. 1st ed. New York: Oxford University Press, 1993.
- Zinn, Howard. *A People's History of the United States*. 2nd ed. New York: Harper's Colophon, 1980; reprint, New York: Harper's Perennial, 1995.