

“For Good or for Evil”: The Early Atomic Age in
*Maclean’s, Saturday Night, Life, and The Saturday Evening
Post, 1945-1950*

by

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Abstract

This thesis explores coverage of the atomic bomb and atomic energy in the Canadian magazines, *Maclean's* and *Saturday Night*, and the American magazines, *Life* and *The Saturday Evening Post*, between 1945 and 1950. Commentaries in 1945 presented a straightforward dichotomy: either the bomb would remain in the hands of individual states, and atomic war would inevitably result, or atomic power would be brought under international control and improve society. Once the onset of the Cold War had blunted the momentum for international control, the magazines urged the United States to maintain its technological lead over the Soviet Union, while continuing to oppose excessive atomic secrecy. By 1950, faith in the positive impact of atomic energy was tempered by more measured accounts of its potential, though optimism remained about the medical uses of radioactive isotopes. The thesis finds a broad similarity in the four magazines' views of the early atomic age.

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Introduction

In the late summer of 1945, Canadians and Americans celebrated victory over Japan and the end of the Second World War in East Asia and the Pacific, having already rejoiced at the defeat of Nazi Germany and the end of the war in Europe that spring. Citizens of both countries looked forward to a postwar world of peace, prosperity, and stability.¹ This thankful, hopeful attitude, however, was tempered by the invention and use of the atomic bomb, the most powerful weapon ever deployed, by the United States against Japan during the final days of the war. The suddenness with which the bomb entered the worldview of North Americans, and the shocking power demonstrated by the destruction of two Japanese cities, made an immediate impact upon the North American psyche, triggering fear and anxiety over the threat this new weapon would pose to the future safety and security of North America. Alongside this fear, there was also a sense of awe and wonder at the accomplishment of “Anglo-Saxon science” and the dramatic, even utopian possibilities that this new form of energy held for the future of modern civilization.²

The widespread view of the implications of the discovery of atomic fission was summarized by the popular Canadian general-interest magazine *Maclean's* in a September editorial. “This is the peace of which scores of millions dreamed,” the magazine declared, “the time of freedom, of security, of new life and great hope for

¹ See Robert Bothwell, *Alliance and Illusion: Canada and the World, 1945-1984* (Vancouver and Toronto: UBC Press, 2007), Chapter 1, for a general description of Canadian politics and society in 1945.

² See Paul Boyer, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* (New York: Pantheon Books, 1985), Chapter 1, for a survey of the range of immediate responses of Americans to the bomb.

which millions fought and died ... And yet,” with the splitting of the atom, “the dream that was dreamt has become the time of judgment.” This momentous development, the editorial continued, presented the human race with a pair of stark alternatives. On the one hand, the atom represented “the source of inexhaustible wealth” that “man, the creator” could harness to “build a world of unimaginable plenty;” on the other, it represented a “power of inconceivable destruction” that he could use to “blast into oblivion his civilization, his kind and ultimately, perhaps, the very world on which he stands.”³

While this mixed response is evident across virtually all forms of popular media consumed by North Americans in the post-Second World War era, from newspapers and film to comic books, radio, popular music, and the emerging medium of television,⁴ this thesis focuses on the response of four general-interest magazines to the atomic age in the years 1945-1950. It analyzes the American weekly *Life* and the Canadian twice-monthly *Maclean's*, as well as the American weekly *The Saturday Evening Post* and the Canadian weekly *Saturday Night*, during the period from August 1945 to early 1950.

As this thesis will demonstrate, the development of the atomic bomb, and its political and social ramifications, were discussed with concern and anxiety by all four publications during the initial weeks and months after the destruction of Hiroshima and Nagasaki and remained a preoccupation over the next five years. The intensity of this preoccupation ebbed and flowed, however, usually influenced by temporal proximity to major events. For the purposes of this study, these events include the bombings of Hiroshima and Nagasaki (August 1945), the proposal of the Baruch Plan for international

³ “For Good or for Evil,” *Maclean's*, September 15, 1945, 1.

⁴ Boyer, *By the Bomb's Early Light*, xviii-xix; Joshua Cornett, “Bombs, Bikinis, and Godzilla: America's Fear and Fascination of the Atomic Bomb as Evidenced Through Popular Media, 1946-1962,” MA thesis, Eastern Kentucky University, 2017, 4-10.

control of atomic energy to the United Nations by the United States (June 1946), the passage of the Atomic Energy Act by the U.S. Congress (July 1946), the Operation Crossroads atomic bomb tests by the United States at Bikini Atoll (also July 1946), and ultimately the successful test of an atomic bomb by the Soviet Union (August 1949).

Media Coverage of the Early Atomic Age in the United States and Canada

The coverage and presentation of the atomic bomb and atomic energy in the popular media in the United States, and particularly in Canada, during this era remains a relatively understudied topic.⁵ More than thirty-five years after its publication, the most important work on the cultural influence of the atomic bomb in the United States during this era remains Paul Boyer's *By the Bomb's Early Light*. Influenced at first by the "profound public apathy" toward nuclear weapons in American culture when he began the research process for the book in 1981, and then by the surge of public anxiety and anti-nuclear activism which ensued during the next few years in response to Ronald Reagan's aggressively anti-Soviet rhetoric, Boyer, a historian who had earlier been an active participant in the 1960s nuclear disarmament movement, sought to understand the origins of public attitudes about the nuclear age during the post-Second World War era.⁶ He argued that the bomb had infiltrated practically every section of American culture during the postwar era, "from any big glossy picture magazine to scholarly conferences to

⁵ Works that more broadly examine the cultural impact of nuclear weapons in the United States during the decades following Hiroshima include Paul Boyer, *Fallout: A Historian Reflects on America's Half-Century Encounter with Nuclear Weapons* (Columbus: Ohio State University Press, 1998); Margot A. Henriksen, *Dr. Strangelove's America: Society and Culture in the Atomic Age* (Berkeley and Los Angeles: University of California Press, 1997); and Guy Oakes, *The Imaginary War: Civil Defense and American Cold War Culture* (New York and Oxford: Oxford University Press, 1994).

⁶ Boyer, *By the Bomb's Early Light*, xv, 360; Andrew Burtch, *Give Me Shelter: The Failure of Canada's Cold War Civil Defence* (Vancouver and Toronto: UBC Press, 2012), 11.

country music to the black press”; that the contemporary psychological and cultural impact of the bomb in the United States was both immediate and profound; and that “All the major elements of our contemporary [1980s]” nuclear discourse, from the fear of a devastating nuclear war to anti-nuclear activism to government-directed attempts to assuage these fears, had their origins in the immediate post-Hiroshima period.⁷

Analyzing the voluminous evidence of the cultural influence of the atomic bomb during the period 1945-1950, Boyer divided his analysis into several thematic sections, each one focusing upon a particular element of the postwar atomic discourse. The most relevant sections for the purposes of this thesis are those which concentrate upon the world-government movement, the so-called “scientists’ movement,” and predictions of a “techno-atomic utopia.” During the period from 1945 to 1947, Boyer argued, Americans, with remarkable speed, translated the destruction of Hiroshima and Nagasaki into visions of the same being done to American cities at an unknown future date, a fear which, he emphasized, “cut across all political and ideological lines.” This “Great Fear,” as Boyer called it, led, during this initial period, to a “somewhat unfocused” but nonetheless widespread belief in the necessity of an “urgent and decisive” public response, manifesting itself in the form of support for a world government. The world government movement, like the “Great Fear,” “cut across ... boundaries of political ideology.”

In parallel with the world government movement, atomic scientists campaigned to defeat the U.S. government’s atomic secrecy efforts and secure international control of atomic energy. Like the world government movement, the “scientists’ movement” drew support from across the ideological spectrum. One additional cultural current observed by

⁷ Boyer, *By the Bomb’s Early Light*, xix.

Boyer during this era was a widespread belief in the almost mystical possibilities of peaceful atomic energy, manifesting itself in utopian visions of an atomic-powered future that illustrated an early dichotomous “either/or” belief that atomic energy would either destroy civilization or secure its “unimaginably bright” future. This early cultural current, like the others hitherto described, “respected no ideological bounds.”⁸

While these trends largely defined the American public response to the atomic bomb between 1945 and 1947, Boyer also argued that, between 1947 and 1950, these public discourses “largely stopped.” This development, he claimed, was driven by growing Cold War tensions between East and West, and finally by the development of atomic bombs by the Soviet Union in 1949. The widespread public fear of atomic warfare in 1945-1947 was largely replaced by the end of the decade by fear of the Communist enemy, against which the atomic bomb became “the shield of the Republic.” By 1950, Boyer claimed, the earlier period of intense public engagement and activism directed at heading off the possibility of a future atomic war had given way to a period of collective disillusionment, apathy, and meek acceptance of the atomic bomb as a necessary evil protecting the U.S. and its allies from the Communist foe. During this period, which lasted until a resurgence of public engagement and antinuclear activism in the late 1950s and early 1960s spawned by atmospheric nuclear weapons testing, widespread fear of nuclear weapons remained, but only as a cultural undercurrent – a “muted, ... only half-acknowledged” fear of an inevitable future atomic war that most Americans felt helpless to prevent.

⁸ *Ibid.*, 14-16, 32, 34-35, 52-54, 110-114, 124-125.

This shift in public attitudes, Boyer contended, was driven in large part by government propaganda, particularly through the popular media. The narratives promoted by the Truman administration and the mainstream American mass media, he claimed, sought to counter widespread public fear of the atomic bomb and atomic energy by emphasizing the likely near-future social and economic benefits of peaceful atomic power. Simultaneously, these narratives downplayed the destructive power of the bomb and the threat posed by radiation while directing public energies toward civil defense preparations, reassuring the American public that an atomic attack was survivable.⁹

Boyer focused entirely on the United States in his study, and no Canadian historian has attempted a similarly comprehensive treatment of attitudes toward the atomic age in Canada during this era. Robert Teigrob's 2009 study *Warming Up to the Cold War*, however, includes analysis of Canadian print media coverage of the atomic bomb as part of a broader attempt to trace the process by which Canadians, traditionally skeptical of, and even hostile toward, the United States, came during the second half of the 1940s to accept American leadership of a peacetime anti-Communist Western alliance. Using a similar methodological approach to that of Boyer, Teigrob relied primarily on the mass print media (Canadian in this case as well as American) as the principal source by which to gauge shifting Canadian attitudes toward the United States. Teigrob surveyed and compared American and Canadian mass media responses to the atomic bombings of Hiroshima and Nagasaki (1945), the Gouzenko espionage revelations (1946), the decolonization of India and Pakistan (1947), the formation of NATO (1949), and the outbreak of the Korean War (1950), all in an attempt to trace the shifting attitudes of the

⁹ *Ibid.*, 296-298, 315-317, 320-327, 334-336, 349-350.

Canadian public (via the proxy of the mass print media) toward the emerging Cold War relative to that of the American public.

Teigrob claimed that, in 1945, prominent voices in Canada echoed traditional critiques of the U.S., expressed suspicion toward American unilateralism and the threat posed to Canadian sovereignty by would-be American hegemony, and promoted the concept of “One World” in the aftermath of the Second World War and Hiroshima. By 1950, however, these early post-war currents of idealism, multilateralism and Canadian nationalism had been mostly displaced by anti-Communism and the emerging Cold War bipolarity. Many of the same voices in the Canadian media that had earlier advocated genuine multilateralism and opposed American hegemony came, by the end of the decade, reluctantly or enthusiastically to accept it as the only realistic alternative to Soviet hegemony and Communist takeover. Canadian nationalism was laid aside in the name of this broader anti-Communist Western alliance.¹⁰

Teigrob argued that this shift towards a pro-American, anti-Communist consensus in Canada was influenced by the saturation of the Canadian mass media market by American mass media and mass cultural products, which undoubtedly promoted points of view that influenced the thinking of Canadians. He also contends, however, that this was not merely a straightforward process of one-way propagandizing. Canadian elites, both Liberal and Conservative, shared many basic ideological goals and assumptions with their American counterparts, and therefore sought to promote the same messages, or Canadianized variations of them.¹¹

¹⁰ Robert Teigrob, *Warming Up to the Cold War: Canada and the United States' Coalition of the Willing, from Hiroshima to Korea* (Toronto: University of Toronto Press, 2009), 4-5, 7, 15-17, 227-230.

¹¹ *Ibid.*, 12-14, 227.

The most relevant chapter of Teigrob's book, for the purposes of this study, is the first, which outlined broad themes in the response of the Canadian print media to the development of the atomic bomb by the United States and its use against Japan, comparing these to the contemporaneous American print media coverage. Teigrob limited his analysis of this theme to the period from August 1945 to the revelation of Soviet espionage in Canada in early 1946. While noting broad similarities in the press coverage of the atomic bomb in the two countries, such as pride in the achievement of Allied scientists, moral justifications of the bombings, utopian predictions of the atomic future, and advocacy of world government or international control of atomic energy, he nonetheless claimed certain distinctions emerged. According to Teigrob's analysis, the Canadian press in this period was more likely to express moral reservations over the bombings (though still usually justifying them), and more likely to present a vision of a postwar order which would be genuinely multilateralist, rather than one dominated by the U.S. or any other country.¹²

Teigrob argued that the Canadian discourse shifted following the public revelation in February 1946 of the September 1945 defection in Ottawa of Soviet cipher clerk Igor Gouzenko, revealing Soviet espionage in Canada, along with press claims at the time of the Soviet theft of Canadian atomic secrets, claims since proven to be false. Teigrob claimed that, from this point onward, Canadians, alerted to the threat of Communist "infiltration" and "subversion," increasingly turned away from earlier dreams of multilateralism, world government, and international control of atomic energy and toward the brand of militant anti-Communism which would characterize the early Cold War

¹² *Ibid.*, 21-28, 34-38, 42, 45-50.

years. While this shift was gradual rather than sudden, Teigrob interpreted the signing of the North Atlantic Treaty in 1949 as the culmination of a process by which Canadians moved from early postwar faith in “One World,” the UN, multilateralism, national self-determination, and international control of atomic energy to bipolarity, acceptance of a U.S.-led anti-Communist alliance, and U.S. control of the atomic bomb.¹³

The methodology and arguments employed in this thesis are influenced by those of Boyer’s study, and to a lesser degree by Teigrob, particularly in its choice of popular magazines as subject material; its focus upon particular cultural currents such as fear of atomic war, early postwar support for international control of atomic energy, and optimism regarding the positive implications of atomic energy; and the attention paid to shifts in coverage during the second half of the 1940s. It is also influenced by Teigrob in its comparison of coverage of the early atomic age in influential Canadian popular magazines with their American counterparts.

This thesis does not attempt to test either author’s arguments on a broad scale, limiting its analysis to the two American and two Canadian magazines under study. On this more localized scale, analysis of *Life*, *Maclean’s*, *The Saturday Evening Post* and *Saturday Night* during the period 1945-1950 largely confirms the theses of both authors as far as coverage of the early atomic age in these magazines is concerned. I find, for example, a broad consensus in support of international control of atomic energy in both the American and Canadian magazines during the period 1945-1946, with this idealism breaking down in the face of growing Cold War tensions as the decade progressed. I also argue that Boyer’s finding of an almost extreme early optimism regarding the potential of

¹³ *Ibid.*, 58-59, 63-66, 128-129, 227.

peaceful atomic power in the American popular media, soon tempered by more realistic appraisals, but nevertheless persisting to the end of the decade, is paralleled in the two Canadian magazines. The thesis also supports Boyer's narrative of an early fear of atomic war, manifested by commentaries emphasizing the destructiveness of atomic warfare, which can be construed as supporting international control rhetoric, giving way to commentaries urging atomic war preparations as the Cold War set in and international-control negotiations broke down. Finally, overall, it endorses Teigrob's argument that Canadian mass media, in this case general-interest magazines, tended to promote the same broad points of view as their American counterparts, whether on atomic war, international control, or peaceful atomic energy, in a market already saturated with American media to an almost unparalleled degree.

At the same time, however, this thesis also argues that the continuities in the magazine coverage of the early atomic age are as important as the shifts in tone. To a certain degree, these continuities undercut Boyer's and Teigrob's relatively straightforward narratives of Americans and Canadians moving from early postwar fear of the bomb and support for international control to Cold War partisanship and embrace of the bomb. For example, I find a current of anxiety and fear of atomic war persisting across the entire five-year period in both *Life* magazine and its Canadian counterparts, with commentators in the late 1940s and early 1950 continuing to emphasize the destruction an atomic war would bring, as earlier commentators had in 1945. The thesis also seeks to disrupt any straightforward narrative of an about-face on the issue of international control of atomic energy by American and Canadian print media, as all four magazines continued to lend at least rhetorical support to the idea of international control

during the latter part of the decade; *Maclean's*, in particular, though not immune to Cold War partisanship, tended to be extremely fair-minded in its apportioning of blame for the breakdown of the negotiations. Finally, the evidence presented calls into question Teigrob's assertion that visions for the postwar international order presented in Canadian print media in the first months after Hiroshima were more genuinely multilateralist than their American counterparts; I find little substantive difference between the post-Hiroshima rhetoric in support of world government in *Life* and the *Saturday Evening Post* and that in *Maclean's* and *Saturday Night*.

The Magazines

The major sources for this study were the complete digitized archives of *Life*, *Maclean's*, and *The Saturday Evening Post*, as well as a collection of photocopied articles, editorials, op-ed pieces, and letters to the editor from *Saturday Night* spanning the years 1945 to 1950. The *Life* digitized archive is available free through Google Books, while the *Maclean's* and *Saturday Evening Post* archives are available to subscribers on the respective websites of these two publications. These four magazines were chosen for this study both because of their high circulation figures during this era (at least by Canadian standards, in the case of *Maclean's*), with the exception of *Saturday Night*, as well as their level of cultural influence and name recognition in their respective countries.

Although four magazines are examined throughout this thesis, the two magazines with which it is primarily concerned are *Life* (American) and *Maclean's* (Canadian). *Life*, originally founded in 1883 as a weekly humour and literary magazine, and becoming a

monthly in 1931, was acquired in 1936 by media magnate Henry R. Luce, who relaunched it in November of that year as a weekly picture magazine.¹⁴ Luce's Time, Inc. media empire already included, by 1936, the weekly newsmagazine *Time* (founded in 1923), the business monthly *Fortune* (founded in 1930), and the radio program and newsreel *The March of Time* (beginning in 1931). He laid out his "ambitious, even arrogant" vision for the rebranded *Life* in a 1936 prospectus sent to the magazine's initial investors.¹⁵ *Life* would "edit pictures into a coherent story" to "make an effective mosaic out of the fragmentary documents which pictures, past and present, are." "A hundred years from now," Luce boasted, "the historian should be able to rely largely on our Picture Magazine instead of ... dozens of newspapers and magazines."¹⁶

This statement highlights two important aspects of *Life*: its "omniscient," self-assured presentation of reality, and the audience it aimed to reach. *Life* used images in much the same way its sister magazine, *Time*, used words: to present, in the words of another Luce prospectus, a "complete and reliable *record* of all the significant events" of any given week. When the magazine "tells a story," he wrote in the same statement, "it will do so with pictorial finality."¹⁷ It explicitly sought to present a straightforward, uncomplicated narrative of events, one which fit securely within a particular, optimistic ideological vision that promoted capitalist modernity, portrayed the United States as a confident, prosperous, primarily middle-class nation steadily overcoming racial and class

¹⁴ Erika Doss, "Introduction: Looking at *Life*: Rethinking America's Favorite Magazine, 1936-1972," in Erika Doss, ed., *Looking at LIFE Magazine* (Washington and London: Smithsonian Institution Press, 2001), 1-21; Alan Brinkley, *The Publisher: Henry Luce and His American Century* (New York: Alfred A. Knopf, 2010), 215; James L. Baughman, *Henry R. Luce and the Rise of the American News Media* (Boston: Twayne Publishers, 1987), 90.

¹⁵ Total startup capital was estimated at approximately \$3 million; Doss, "Introduction," 2.

¹⁶ *Ibid.*

¹⁷ Baughman, *Henry R. Luce*, 101.

divisions, and presented the “American way of life” as a model for the world to follow.¹⁸ True to its democratic spirit and presentation of the U.S. as a relatively homogeneous, “classless” nation, *Life* aimed to appeal to as broad an audience as possible, though, as historians have shown, its readership tended to be disproportionately middle- to upper-middle-class.¹⁹

Although *Life* was not commercially successful during its first few years in print – Time, Inc. took a \$3 million loss on the magazine during its first year, ironically because of unexpectedly high demand – by the 1940s it had begun to turn a profit and had become one of the most widely consumed magazines in the United States. During the late 1940s, the period with which this thesis is concerned, it has been estimated that, between paid circulation and pass-along copies, the magazine reached 21 percent of the American population over the age of ten (approximately 22.5 million people) and took in 19 percent of all advertising revenue in the country.²⁰ *Life* was by no means the first or the only picture magazine in the U.S. or the world, and during the 1940s, it was outcompeted in terms of paid circulation by its closest competitors, the *Saturday Evening Post* and other weeklies like *Collier's* and *Liberty*, meaning that its popularity relative to these other magazines and other forms of media should not be exaggerated. Even historians who caution against overstating its impact nonetheless concede that *Life* enjoyed a certain cultural cachet during its thirty-six years as a weekly. As historian Erika Doss has argued, *Life* played a major role in “representing and disseminating information and ideas, and

¹⁸ Doss, “Introduction,” 11; Brinkley, *The Publisher*, 239.

¹⁹ Baughman, *Henry R. Luce*, 91; Brinkley, *The Publisher*, 238; James L. Baughman, “Who Read *Life*? The Circulation of America’s Favorite Magazine,” in Doss, ed., *Looking at Life Magazine*, 41-51.

²⁰ Doss, “Introduction,” 2-3.

shaping their meaning to an ever-increasing body of consumers fluent in the language of pictorial communication.”²¹

Although Luce had concentrated on building his media empire and largely avoided politics during his first two decades as a magazine publisher, by the era with which this thesis is concerned, the success of *Life* and his other magazines had given him a sense of his own importance in shaping public opinion; he had, accordingly, begun to consciously promote particular ideological points of view in his magazines. In the area of foreign affairs, *Life* and the other Luce magazines, which had earlier been staunch supporters of U.S. intervention in the Second World War prior to the Japanese attack on Pearl Harbor, turned their sights upon a new enemy in the second half of the decade. Gradually abandoning its earlier ambivalence toward the Soviet Union, *Life* came by the late 1940s to be a staunch supporter of the Cold War and of the role of the U.S. in containing the threat of “Communist imperialism.”²²

Maclean's, the principal Canadian magazine analyzed in this study, was founded in 1905 as *The Busy Man's Magazine* by Canadian publisher Colonel John Bayne Maclean, who had previously founded a number of trade publications such as *Canadian Grocer* and *Dry Goods Review*. Originally a digest intended for well-off “busy men,” in 1911 Maclean changed the magazine's name and its focus, transforming it into a general-interest periodical. It would eventually adopt the tag line “Canada's National Magazine” in 1917, twelve years after its founding, a tag line it carries to this day. Its original appeal was much more restricted, however. Like Colonel Maclean's other publications, *Maclean's* was “built cautiously to capitalize on specific opportunities in narrow

²¹ *Ibid.*, 3-4; Baughman, “Who Read *Life*?”, 41, 48.

²² Baughman, *Henry R. Luce*, 3-4, 103, 116-122, 148-150.

markets.” It was only during the First World War that Maclean chose to make Canadian nationalism a major selling point of his namesake magazine. Before *Maclean's*, the lifespan of a Canadian magazine was rarely more than a decade, as most such magazines were unable to attract sufficient subscribers and advertisers to survive. Homegrown Canadian publications such as *Maclean's* and *Saturday Night* always struggled to compete with their American counterparts, such as the *Saturday Evening Post*. By the 1920s, it was estimated, American magazines outsold their Canadian competitors by roughly an eight-to-one ratio in Canada. *Maclean's*, however, discovered a successful survival strategy by combining Canadian nationalist stances and a helping of Canadian content with an imitation of the style and content of its American competitors, such as the *Post*, to attract American advertising dollars.²³

In 1945, at the beginning of the period under study, *Maclean's* had nearly 300,000 subscribers (as compared to 100,000 two decades earlier and 15,000 three decades earlier) although it had made only \$300,000 profit in its entire existence.²⁴ Nonetheless, the magazine was already setting itself up to take advantage of the anticipated postwar prosperity. The publisher was Floyd Chalmers, already acclaimed for his editorship of the *Financial Post* newspaper. Chalmers, hired in 1942, capitalized on an improving economy and growing ad revenue by raising the magazine's cover price from five cents to ten and raising subscription prices from one dollar to \$1.50 per year.

²³ Donna Braggins, “*Maclean's*: The Accidental Nationalist: How Hustling for Ads Built a National Icon,” MA thesis, York University, 2008, 2-4; Mary Vipond, *The Mass Media in Canada*, fourth edition (Toronto: James Lorimer and Co., Ltd., 2011), 30-32, 35; Paul Rutherford, *The Making of the Canadian Media* (Toronto: McGraw-Hill Ryerson Ltd., 1978), 43, 47-48; Fraser Sutherland, *The Monthly Epic: A History of Canadian Magazines, 1789-1989* (Markham: Fitzhenry and Whiteside, 1989), 138-141. In contrast to the plethora of published works on *Life* and the other Luce magazines, there is a dearth of scholarly writing on *Maclean's* and *Saturday Night*. Vipond and Rutherford describe both magazines only briefly, while Sutherland's popular history, as well as that of Noel Barbour, cited below, offer substantially more detail.

²⁴ Braggins, “*Maclean's*: The Accidental Nationalist,” 4, 46.

The magazine's editor for most of this period was Arthur Irwin. After serving as deputy editor since 1925, Irwin was promoted by Chalmers in 1945. Irwin, declaring in 1946 that "We are now into a lush market ... undoubtedly we are also heading for the toughest competition in our history," set *Maclean's* up to meet this challenge by redesigning the magazine's overall look, increasing both its visual and written content, and expanding the editorial staff from six to sixteen, including Ralph Allen, who succeeded Irwin as editor in early 1950.²⁵ A Canadian nationalist, Irwin was determined to make the magazine "more identifiably Canadian."²⁶ At the same time, as historian Donna Braggins has shown, *Maclean's* successful imitation of its American counterparts such as the *Post* continued in this era, particularly in its cover images by Canadian artists such as Franklin Arbuckle, whose "nostalgic realist" style, displaying "accessible images of Canadian life," mimicked that of American artists like Norman Rockwell.²⁷ This continued strategy of combining Canadian nationalism with an imitation of American mass cultural products evidently worked. "This period," Braggins writes, "saw the magazine soar in popularity and profits."²⁸ By 1950, the end of the period under study, *Maclean's* had surpassed 400,000 subscribers; a 1949 study estimated the magazine had over one million total readers, second only to *Reader's Digest* in Canada, and ahead of Henry Luce's *Time* magazine.²⁹

The *Saturday Evening Post*, the popular American weekly that *Maclean's* imitated so successfully, was founded in 1821 in Philadelphia, Pennsylvania (although, from 1898

²⁵ *Ibid.*, 51-53.

²⁶ Sutherland, *The Monthly Epic*, 219.

²⁷ Braggins, "Maclean's: The Accidental Nationalist," 55.

²⁸ *Ibid.*, 47.

²⁹ Sutherland, *The Monthly Epic*, 223; Rutherford, *The Making of the Canadian Media*, 82; Noel Robert Barbour, *Those Amazing People! The Story of the Canadian Magazine Industry, 1778-1967* (Toronto: The Crucible Press, 1982), 138.

until its demise in 1969, it claimed to have been founded by Benjamin Franklin in 1728, based on a rather tenuous connection between the *Post* and Franklin's *Pennsylvania Gazette*).³⁰ During the first two decades of the twentieth century, under editor George Horace Lorimer, the *Post* established a national reputation for itself as "America's interpreter." During Lorimer's final years as editor, the magazine entered a decline. Basilio Raymundo Manago, in his 1968 study of the *Post*, claimed that the staunchly conservative Lorimer made his magazine "a strident dissenter to a changing America which he steadfastly refused to understand and accept." This resulted in a loss of both revenue and cultural prestige. The *Post* failed to change direction under Lorimer's handpicked successor, Wesley Winans Stout, editor from 1937 to 1942. Ben Hibbs served as editor of the *Post* during the period under study. Hibbs took over in 1942 and immediately instituted changes that restored the magazine to its earlier level of commercial success and cultural prestige during the following decade.³¹

Saturday Night was founded in Toronto in 1887 as *Toronto Saturday Night* and soon shortened its name. The magazine's founder and original editor, Edmund Sheppard, stated at the time that his aim was to make it "the most piquant and entertaining of any Canadian journal." Noel Barbour, in his popular history of the Canadian magazine industry, writes that despite Sheppard's often contrarian and controversial points of view and his "outspoken" criticism of the Toronto establishment, the magazine gained a reputation in its early years as a highbrow weekly and became "a status symbol on the tables of the best homes." Robert Fulford, a later editor of *Saturday Night*, estimated its

³⁰ Basilio Raymundo Manago, "The *Saturday Evening Post* Under Ben Hibbs: 1942-1961," PhD dissertation, Northwestern University, 1968, 6-8.

³¹ *Ibid.*, 2-3.

average circulation as being roughly 10,000 during its first two decades.³² Despite this relatively low circulation (the *Saturday Evening Post*, by comparison, had a Canadian circulation of nearly 100,000 in 1917), Barbour states that, by the early twentieth century, the magazine had acquired a “robust personality” and national influence built on a reputation for dramatic exposés which led to charges of “muck-raking” from the establishment.³³ In the 1920s, *Saturday Night*, like *Maclean’s*, attempted to compete with popular American magazines like the *Post* in the Canadian market by imitating them; it also lowered its subscription price and attempted to expand its base beyond southern Ontario in order to reach a more national audience.³⁴ Nevertheless, by the 1930s, it had entered a decline, becoming “staid” and “stodgy” under the leadership of Mabel Sutton and Hector Charlesworth.³⁵

The magazine experienced a renaissance under B.K. Sandwell, editor from 1932 to 1951. While the mildly progressive Sandwell made no “revolutionary” alterations to *Saturday Night*, the magazine nonetheless acquired, during his editorship, a reputation as “the authentic voice of ... the liberal elite of English-speaking Canada,” reaching “a position of prominence in the country that it has never reached before or since,” despite having a circulation of only 30,000.³⁶ As this circulation figure suggests, the Sandwell-era *Saturday Night*, despite its newfound national prominence, continued to appeal to an essentially “highbrow” audience, in contrast to the “middlebrow” appeal of *Maclean’s* (and *Life* and the *Post*, for that matter).³⁷ This renewed influence did not necessarily

³² Barbour, *Those Amazing People!*, 55; Fulford quoted in *ibid.*

³³ *Ibid.*, 57, 67, 70.

³⁴ Vipond, *The Mass Media in Canada*, 32.

³⁵ Barbour, *Those Amazing People!*, 109.

³⁶ *Ibid.*, 111-12, 154.

³⁷ Rutherford, *The Making of the Canadian Media*, 81-82.

translate into financial success, however. By the end of the period under study, *Saturday Night*'s financial losses were such – almost \$200,000 per year – that the magazine reduced its frequency from a weekly to a twice-monthly, the same as *Maclean's*. By the end of the decade, it rebranded itself as a newsmagazine to compete with Luce's *Time* in the Canadian market, beginning what Canadian media historian Paul Rutherford has called “a long period of experimentation with format and content” in an attempt to attract subscribers and advertisers.³⁸

Chapter Summary

While reviewing the early post-Hiroshima coverage of the “atomic age” in the four publications, three major themes became apparent. Firstly, the shocking power of the bomb, demonstrated by the destruction of Hiroshima and Nagasaki, immediately triggered anxiety over the possibility that North American cities could receive the same treatment at some as-yet-unknown future date once a hostile nation had developed the bomb. Recognizing that the destructiveness of the bomb was an order of magnitude greater than any weapon previously employed in warfare, *Life* and *Maclean's* published articles and op-ed pieces, in the late summer and fall of 1945, speculating upon the effect this would have on the future of modern warfare.

The unprecedented destructive power of the bomb also led all four magazines, in their early post-Hiroshima editorials, to question the wisdom of unmitigated national sovereignty now that the U.S. government, and potentially other national governments in the future, possessed at least the theoretical ability to destroy civilization. The most

³⁸ *Ibid.*, 82; Barbour, *Those Amazing People!*, 153; Sutherland, *The Monthly Epic*, 178-179.

obvious solution that presented itself was the formation of a supranational body – in the most ambitious formulations, no less than a world federal government – with authority over national governments to prevent them from going to war with each other.

Finally, alongside the fear and anxiety which motivated the first two discussions, the potential demonstrated by the splitting of the atom inspired great optimism that this remarkable power could be channelled in a more constructive direction, potentially even replacing what are now called “fossil fuels” – coal, petroleum, and natural gas – as the primary power source of modern civilization.

All three of these themes were found to be periodically revisited by *Maclean's*, *Life*, *Saturday Night* and the *Saturday Evening Post* during the five-year period from 1945 to 1950. This thesis does not attempt to document exhaustively every aspect of the coverage in each magazine, limiting its analysis to these three themes. A selection of pieces from all four magazines is used to illustrate the shifting tenor of the coverage of each theme. In some cases, analysis is limited to two or three magazines whose coverage is most substantial. This thesis is divided into three chapters, each of which is concerned with the coverage of one of the three overarching themes between summer or fall 1945 and winter 1950, focusing upon feature articles, opinion essays, and editorials.

The first chapter analyzes the shifting themes in commentaries on the effect of the atomic bomb upon the future of warfare and predictions of how a future atomic war would most likely unfold, as presented in major feature articles and opinion essays contributed to these magazines. Some of the commentaries were contributed to the American magazines by American journalists, and to the Canadian magazines by American and Canadian journalists; others were contributed by retired American (in the

case of the American magazines) and Canadian and British (in the Canadian publications) military officers, whose professional opinions were presumably highly rated by the editors of these publications.

Chapter One argues that these commentaries can be divided into three broad phases. During the first year after Hiroshima and Nagasaki, commentators in *Life* and *Maclean's*, influenced by the destruction visited upon these two cities, declared traditional modes of warfare obsolete and stressed the vulnerability of modern cities in the face of such a spectacular weapon. Anticipating that the American nuclear monopoly would be short-lived and other nations would soon develop the bomb, they argued that a hypothetical future atomic war would not produce a “victor” in the traditional sense but would instead result in what would later be termed the “mutually assured destruction” of both sides.

The two American atomic tests at Bikini Atoll in the Marshall Islands heralded the second phase, which lasted roughly three years and was influenced by the Bikini tests in two contradictory ways. While Bikini demonstrated the limits of the bomb's destructive powers, it also raised the spectre of radioactive fallout, which the post-Hiroshima coverage had mostly ignored. Commentary in *Life* and *Maclean's* during this second phase, influenced by Bikini, adopted a more hopeful outlook compared to the first phase. Continuing to highlight the possibility of an apocalyptic atomic war well in the future, commentators in these magazines also proffered offensive and defensive strategies for the atomic age which, they argued, the U.S. (and Canada, in the case of *Maclean's*) could follow to win a near-future atomic war while minimizing damage to themselves.

Apocalyptic scenarios were presented merely as worst cases, should commentators' recommendations be ignored.

The development of the atomic bomb by the Soviet Union, increasingly identified as the obvious opponent in any future atomic war, years earlier than most Western commentators had anticipated, suddenly transformed an atomic war from a hypothetical scenario to a real possibility. Commentaries during this final phase, in late 1949 and early 1950, particularly in the American *Life* magazine, revived the anxiety of the first phase, accompanied by notes of urgency, renewed concern over the vulnerability of North America to an atomic attack, discussion of the readiness of the U.S. and the Western alliance for war, and doubts that an atomic war could be won, despite the assurances of commentators in the second phase.

Chapter Two examines the progression of commentary on international control of atomic energy to prevent an atomic war of the kind envisioned by commentators in Chapter One. This chapter primarily examines editorials in the four magazines between August 1945 and February 1950. Here two broad phases are in evidence. As in Chapter One, the first phase covers the first year after Hiroshima and Nagasaki. During this period, editorials in all four publications urged the immediate formation of a world federal government, or, if this proved not to be feasible, an international atomic energy authority that would control all atomic energy research and fissile materials to prevent their misuse by an individual sovereign state. The newly established United Nations Organization (UNO or UN) was the obvious candidate to assume the role of a world government or to take control of atomic research facilities and fissile material. While both the American and Canadian magazines acknowledged that the UN Charter severely

limited the organization's powers and prioritized national sovereignty, they pointed out that the negotiations that had produced the Charter predated the atomic bomb. Despite the obvious difficulty involved, they encouraged the gradual reformation of the UN into a true world government.

As the decade progressed, the world government dream appeared to fade, supplanted by the lesser goal of an international atomic authority with control over all atomic energy resources. The first concrete proposal in this direction, the so-called Baruch Plan, was presented by financier Bernard Baruch, the American delegate to the UN Atomic Energy Commission (UNAEC) in June 1946, ushering in the second phase of commentary discussed in this chapter. The Baruch Plan, endorsed by Canada and other Western nations on UNAEC, involved a strict system of international control and inspection, which would be established in stages before the U.S. relinquished its atomic arsenal. The Soviet Union rejected this plan and put forward a rival proposal involving the immediate outlawing of atomic weapons, accompanied by only a limited system of international inspection. This in turn was rejected by the Western powers. The Canadian and American magazines, in periodic coverage of the stalemated UNAEC negotiations between 1946 and 1950, endorsed the American plan and identified the USSR's authoritarian political system, penchant for official secrecy, and insistence upon the inviolability of its national sovereignty as the primary obstacles to an effective system of international control and inspection.

A parallel discussion during this second phase was concerned with a different kind of official secrecy, that of the United States, and particularly with the strict controls enshrined in the Atomic Energy Act, passed by Congress in July 1946. *Maclean's*

magazine was particularly critical of the U.S. in this regard. While conceding the necessity of some measure of secrecy unless and until international control was achieved, the magazine took the U.S. government to task for what it regarded as unnecessarily strict levels of atomic secrecy, which held back the non-military atomic research of allied nations such as Canada and the United Kingdom. *Life* magazine, despite its growing anti-Soviet, pro-Cold War stance, also condemned the U.S. government's strict atomic secrecy, which, it argued, would stifle the free exchange of knowledge that had hitherto been the basis of Western science and harm American democratic traditions by excluding the public from decision-making processes. The development of the atomic bomb by the USSR in 1949, notably, did not usher in a new phase in these parallel discussions, the tenor of which remained substantially unchanged in the winter of 1950.

Chapter Three examines the repeated attempts of commentators in the magazines to emphasize the positive side of atomic energy. Once again, the first phase of commentary includes the first several months after Hiroshima and Nagasaki. In Canada, the first predictions regarding the peaceful use of atomic energy appeared in the pages of *Maclean's* and *Saturday Night* in the late summer and fall of 1945. These early articles, written by journalists (notably American, not Canadian) who lacked the formal scientific training necessary to fully understand the subjects that they were describing, were characterized by an almost completely unchecked optimism. These authors envisioned that, in the not-too-distant future, cheap, abundant atomic fission energy would replace coal, petroleum and natural gas as the principal power source for industry, motor vehicles, locomotives, ships, and aircraft; supply heat and electric power to consumers at such a low cost as to be virtually free; and decrease the demand for manual labour,

thereby reducing work hours and increasing leisure time as well as the availability of both luxury goods and necessities for the average person.

This first phase of utopian prophecies had largely abated by the spring of 1946, when articles appeared in both *Maclean's* and the *Saturday Evening Post* that adopted a far more cautious tone regarding the potential near-future benefits of peaceful atomic energy. Contradicting the commentators of 1945, the commentators of 1946 put forward technical and scientific arguments demonstrating the infeasibility of atomic-powered automobiles and aircraft and arguing that uranium-235 and plutonium were unlikely to compete economically with fossil fuels sufficiently to replace them as a primary power source or significantly to drive down the cost of heat and electricity. These authors did, however, see a role for atomic energy in power generation, but as a supplement to, rather than a replacement for, existing power sources.

Though sporadic predictions continued of atomic energy eventually replacing fossil fuels, beginning in 1946, and continuing to the end of the decade, radioactive isotopes effectively replaced atomic power generation as the primary source of optimism in *Maclean's* and *Saturday Night's* coverage of peaceful atomic energy. Articles contributed by physicians and scientists, as well as journalists, promoted the benefits of artificially radioactive isotopes, produced in atomic piles, of elements that played a key role in the body's metabolic processes. Their use was promoted as a treatment for cancer and other diseases, in addition to their potential for aiding medical and biological researchers to solve the mysteries of metabolic processes. Such knowledge, optimistic commentators argued, would facilitate the prevention of disease; potentially allow the aging process to be delayed or even halted; enable improved, more efficient agriculture; and even allow

scientists to duplicate the process of photosynthesis to harness solar energy to supply humanity's energy needs – an alternative to the earlier dream of an atomic-powered civilization. As the decade ended, therefore, despite lingering fears and anxieties over the now-realistic possibility of a near-future atomic war, the rapidly fading chances for international control of atomic energy, and the deflation of early runaway optimism toward atomic power, a sliver of hope remained in the form of the limited benefits promised by atomic power and radioactive isotopes. These hopes, however, paled in comparison to the threat of atomic weapons, which, by 1950, was seemingly permanent.

Chapter 1: “The Ghastliest of All Wars”: Atomic War Predictions

“We Can’t Risk War Now”: Apocalyptic Scenarios, 1945-1946

Immediately after the atomic bomb was introduced as a weapon of war, opinion-molders writing in both the leading Canadian and American general-interest magazines began to speculate about how it would alter the way future wars were waged. This chapter will concentrate on *Life* and *Maclean’s* as the two magazines in this study that commented most frequently on the possibility of a future atomic war. Early predictions, by American commentators writing in *Life* and by Canadian and British commentators writing in *Maclean’s*, emphasized the massively amplified destructive power of the bomb. While, in some respects, the bomb was merely a continuation of twentieth-century technological developments in the field of warfare, it nonetheless represented a revolutionary departure from the principles upon which military conflicts had traditionally been based. The magazines argued that there was no adequate defence against the bomb, that urban centres in Britain and North America would be extremely vulnerable to atomic weaponry delivered by aircraft or missiles, and that the destructive power of the bomb, combined with the likelihood that other nations would develop it in the future, ensured that future wars on the scale of the First and Second World Wars would be too costly to risk starting them in the future.

A mere two weeks after Hiroshima, in its August 20, 1945, issue, *Life* published an essay by *New York Times* military editor Hanson W. Baldwin speculating on the likely effect the development of the atomic bomb would have upon the future of warfare. Even before the development of the long-range rocket and atomic bomb during the Second World War, Baldwin argued, offensive military technology had already gained a

tremendous advantage over defensive military technology thanks to the development of airpower, which had given military forces the ability “to pass above the struggling surface forces and to strike directly the enemy’s cities, industries, communications and will to resist.”³⁹ While aerial bombardment as practiced in the Second World War required the massing of “tremendous numbers” of bombers in order to fulfil its full destructive potential, and bombers could be shot down by fighters and anti-aircraft guns, the potential pairing of an improved version of the German V2, against which no practical defence existed, with an atomic warhead represented “the ultimate triumph of the offense over the defense.”⁴⁰ Baldwin conjured a chilling image of a potential future war in which “rockets ... can span the Atlantic and ... their atomic warheads can destroy cities at one breath and ... man can do nothing to prevent this.”⁴¹

In *Maclean’s* magazine, visions of a future atomic war first appeared in an October 1945 article by Max Werner and a November 1945 essay by the noted British military strategist and retired Major-General J.F.C. Fuller. Both authors, emphasizing the revolutionary nature of the change which the atomic bomb would bring to the future of warfare, argued that the destructive power of the bomb would, in a hypothetical future in which multiple nation-states possessed it, make future wars so costly to both “winner” and “loser” as to completely obviate any advantages of engaging in such a conflict. Werner argued that the atomic bomb represented not merely a supplement to existing military technologies, but an entirely new mode of warfare that rendered all previous modes of warfare obsolete. In the Second World War, he argued, the American, British,

³⁹ Hanson W. Baldwin, “The Atom Bomb and Future War,” *Life*, August 20, 1945, 17-18, 20.

⁴⁰ *Ibid.*, 17-18.

⁴¹ *Ibid.*, 18.

German, and Soviet militaries had perfected the form of “modern war,” a technologically updated version of “those principles of war which were two and a half thousand years old and were still being applied in World War II.”⁴² Those principles were simple: “[W]ars were waged by fighting forces. Army met army, and decision was reached in battle... Manoeuvre and breakthrough on the battlefield were the main methods.”⁴³

The atomic bomb, Werner reasoned, had upset this traditional model of warfare for the simple reason that its destructive power was massively greater than that of existing weapons. Estimating that “150 to 200 atomic bombs can perform the destructive work of three to four million tons of bombs of 1944 vintage,” Werner argued that the bomb exponentially increased the destructive power of air forces. The total number of available atomic bombs now replaced the total amount of available air cargo space as the key factor in an air force’s destructive power. An enemy nation could now be destroyed “by one single raid, with 150-200 bombers or long-distance rockets.”⁴⁴ This exponential increase in destructive power would fundamentally alter the way in which future wars were waged, with targeting of enemy industry and population centres replacing the traditional clash of armies, continuing and intensifying a trend that had already begun during the Second World War.⁴⁵

Werner’s argument that the destructive power of the atomic bomb ensured that the costs of any future war on the scale of the First and Second World Wars would outweigh the potential benefits to the victors was also the central theme of J.F.C. Fuller’s

⁴² Max Werner, “We Can’t Risk War Now,” *Maclean’s*, October 1, 1945, 7, 59-60.

⁴³ *Ibid.*, 59.

⁴⁴ *Ibid.*, 7.

⁴⁵ *Ibid.*, 59.

November 1945 essay in *Maclean's*. Fuller viewed the atomic bomb as the logical conclusion of the increasing tendency, in twentieth-century warfare, towards the physical destruction of the enemy as an end in itself rather than a means to an end, a tendency which he clearly deplored.

The premise of Fuller's argument was that "the fundamental cause and aim of war are economic... [It] is ... the acquisition of wealth."⁴⁶ Even in the most primitive hunter-gatherer or agricultural societies, he argued, but especially in a modern world deeply interconnected by trade, a key axiom of conflict was that one must inflict only as much damage upon one's enemy as is necessary to achieve one's goals. The military goal of a war, therefore, namely the physical destruction of the enemy, must always be subordinated to the higher "constructive" political goal.⁴⁷ While Britain's geopolitical strategy had followed this axiom prior to 1914, in both World Wars, but particularly in the Second, the Allied "total war" strategy had adopted as its goal "the annihilation of Germany as a military power... [T]he political point of view was extinguished by the military, and, in consequence, destruction as a means became the end itself."⁴⁸ The advent of the atomic bomb had reduced this method of warfare to "as absurd a position as that of the insane butcher whose means of slaughter vaporized his beef and mutton."⁴⁹

Fuller acknowledged that such a purely destructive mentality regarding warfare had already existed in earlier eras, for example during the sixteenth- and seventeenth-century European wars of religion, only for a more "rational" attitude to reassert itself in the

⁴⁶ J.F.C. Fuller, "Mars Gone Barmy," *Maclean's*, November 1, 1945, 11, 61-62.

⁴⁷ *Ibid.*, 11.

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

eighteenth century. He expressed strong doubts, however, that a return to rationalism was possible in the twentieth century, an era in which ideology and propaganda reigned supreme.⁵⁰ “So long as greed for material things dominates the lives of men,” he wrote grimly, “peace is likely to last just long enough for the nations to recover from the recent war and prepare for the next one.”⁵¹ Citing an unnamed “reliable authority” who claimed the atomic bomb could be made up to one thousand times more powerful than it currently was (a likely allusion to what would become the hydrogen bomb), he echoed Werner by pronouncing the warfare of the Second World War “already as out of date as the Peloponnesian [War]” and concluded that, “so long as the aim of war remains destruction,” every nation may as well abolish its conventional forces, for in an atomic war there would be absolutely no place for them.⁵²

Based on these arguments, Fuller offered a darkly pessimistic vision of the future of warfare in which “whole countries will be girt about by radar sets, ceaselessly ‘listening in’ for the first jazz note of the broadcast of destruction.” Radar detection of a missile launch from an enemy country (“to declare [war] would be sheer madness”) would trigger the retaliatory launch of two sets of missiles – offensive missiles against enemy cities and defensive missiles to intercept the enemy’s missiles. If anyone was left alive at the end of such an all-out exchange, he predicted, “undoubtedly a conference will be held to decide who was victor and who was vanquished, the latter being forthwith liquidated by the former as war criminals.”⁵³

⁵⁰ *Ibid.*, 11, 61.

⁵¹ *Ibid.*, 61.

⁵² *Ibid.*

⁵³ *Ibid.*

In the same month as Fuller's essay, *Life* published an article, accompanied by graphic illustrations, offering a scenario of an atomic surprise attack against the U.S. at an unspecified future date. Citing a recently published report by General Henry H. Arnold, commander of the U.S. Army Air Forces, which stated that "a weapon of the general type of the German V-2 rocket" with "greatly improved range and precision" could be used to deliver atomic bombs to their targets, *Life* envisioned "the ghastliest of all wars" once such weapons were possessed by other nations as well as the U.S.⁵⁴ *Life*'s hypothetical atomic war began with strikes on major U.S. cities by long-range rockets with atomic warheads, in which 10 million Americans were initially killed.⁵⁵ The purpose of these strikes, the article's anonymous author emphasized, would not be "to destroy industry," which was an objective only in "long old-fashioned wars" like the recently concluded Second World War, but rather "to paralyze the U.S. by destroying its people."⁵⁶ Powerful defensive radar systems would detect incoming enemy rockets, electronic computers would calculate their trajectories, and defensive atomic-tipped rockets would be launched to intercept them. Nonetheless, *Life* cautioned that this defence would not be impervious, as radar detection of incoming enemy missiles would only give about 30 minutes of advance warning. Furthermore, a robotic aircraft like the V1 flying bomb deployed by the Germans late in the Second World War could fly low enough to evade defensive radar systems, atomic explosives could possibly be smuggled into the U.S. by enemy agents, and defensive rockets would "inevitably" miss "some of the time."⁵⁷

⁵⁴ "The 36-Hour War," *Life*, November 19, 1945, 27-35.

⁵⁵ *Ibid.*, 27-29.

⁵⁶ *Ibid.*, 29.

⁵⁷ *Ibid.*, 30-31.

Shifting its focus from defence to counterattack, *Life* cited Arnold's statement that "real security against atomic weapons in the visible future will rest on our ability to take immediate offensive action with overwhelming force." Basing its hypothetical narrative on this premise, *Life* imagined that the U.S. would have constructed several self-contained underground facilities that would combine atomic bomb factories with offensive rocket-launching sites. Within an hour of the initial strikes on the U.S., these facilities would respond with retaliatory strikes against the cities of the unnamed enemy nation that had launched the attack.⁵⁸ In the meantime, the enemy nation, seeking to win the war, would follow up its atomic strikes with an airborne invasion of the U.S. by paratroopers equipped with anti-radiation gear. *Life* confidently predicted that the U.S. would repel this invasion, "lay waste" the enemy cities with its own atomic-tipped rockets and conquer and defeat the enemy nation via an airborne invasion of its own, winning the war a mere 36 hours after its outbreak. In line with its overall pessimistic tone, however, the article predicted such a victory would be pyrrhic, with the U.S. losing 40 million people and all its cities with a population of over 50,000.⁵⁹

Life, naturally enough, focused on the U.S. in its atomic war scenario, and the commentators hitherto referenced in Canada and the U.S. spoke in general terms of hypothetical atomic warfare without focusing upon any country. In the spring of 1946, *Maclean's* turned its attention to the threat posed by the atomic bomb to Canada's "mother country," Great Britain, in an essay by British politician, writer, and former naval officer Stephen King-Hall. The advent of the atomic bomb, King-Hall argued, had

⁵⁸ *Ibid.*, 32-33.

⁵⁹ *Ibid.*, 34.

made Britain extremely vulnerable in the event of a future war and, in the process, had rendered traditional British strategic thinking obsolete. Citing his expertise as a former member of the naval planning staff at the British Admiralty, King-Hall proposed to explain for readers the strategic thinking of the British General Staff in the event of a possible conflict with the Soviet Union within the next decade. No longer being privy to British defence plans, he inferred that the general strategic picture resembled that of the Napoleonic Wars and the two World Wars: a continental war against “a great land army which endeavors to conquer Europe as a preliminary to conquering Britain.”⁶⁰ In such a war the Royal Navy, as it had in previous conflicts, would seek to maintain control of seaborne transportation routes in order to ensure the resupply of Britain, the political and industrial heart of the British Empire and Commonwealth, as well as to deny their use to the enemy to resupply itself from overseas and to move armies overseas.⁶¹

Having described for his readers this “familiar picture” of British strategic thinking, King-Hall turned to the impact of the atomic bomb, which, he stressed, “shatters preconceived and traditional notions of imperial defense.”⁶² He echoed the commentators previously cited by stating that an atomic weapon could be delivered to its target by a bomber aircraft or a long-range rocket, or even be smuggled by enemy agents, and would likely be used in a pre-emptive strike immediately upon the outbreak of war.⁶³ London, the economic and political heart of Britain, would be extremely vulnerable in the event of an atomic war. One or more atomic bombs dropped on London upon the outbreak of war, King-Hall argued, would effectively cripple the UK “at a single blow.”

⁶⁰ Stephen King-Hall, “Britain Can’t Be Defended in Atom War,” *Maclean’s*, March 1, 1946, 7-8, 38-40.

⁶¹ *Ibid.*, 38.

⁶² *Ibid.*

⁶³ *Ibid.*, 38-39.

(The U.S. and USSR, he noted, could not be similarly crippled by the loss of a single city.) In such a scenario, the Royal Navy would effectively be rendered impotent and control of the sea lanes would be useless.⁶⁴

In the first several months after Hiroshima, then, speculation on the likely future impact of the atomic bomb in both *Life* and *Maclean's* was decidedly negative in its assessments. In the face of such an incredible weapon, writers in both magazines argued, the traditional modes of thought which had governed military strategy up into the twentieth century were effectively rendered obsolete. When paired with the modern technologies of the long-range aircraft and the long-range rocket, a terrifying combination was created against which an adequate defence would be difficult, if not impossible, laying the United States, Canada, and especially Britain wide open to physical and human devastation. Even in a scenario in which the Western powers managed to “win” such a war, the destruction inflicted by the atomic bomb ensured there would be no true victor.

“A Known and Measurable Danger”: *Constructive Recommendations for Atomic War Preparations, 1946-1948*

Despite the pessimistic outlook described in the previous section, from the summer of 1946 onward, articles and opinion essays on a future atomic war in *Maclean's* and *Life* began to offer a more optimistic outlook, arguing that concepts such as “defence” and “victory,” previously deemed obsolete in the atomic age, still applied in fact. In *Maclean's*, the shift began, somewhat ironically, with a June 1946 essay by J.F.C. Fuller.

⁶⁴ *Ibid.*, 39.

While Fuller's previous essay in that magazine had denounced the entire concept of an atomic war as insanity, he now appeared to accept the atomic bomb as an instrument of warfare, offering recommendations for its integration into military strategy in a rational, constructive manner. Beginning from the premise that, "unless there is a radical change in the hearts of men," another global conflict was inevitable, he set out to examine how the roles of the army, navy and air force would need to be adapted in a future conflict. The most important factor in the organization of all military forces of all branches, Fuller stated, was their ability to move from one location to another with the greatest possible speed and ease, a capacity that he rated more highly than their destructive power. The atomic bomb, despite its vastly increased destructive power, did not fundamentally alter this fact, so long as scientists had not devised a way to harness atomic power to increase the mobility of military forces.⁶⁵ Fuller argued that conventional military forces would still be required in the atomic age to conquer and occupy enemy territory. The explosive yield of the bomb, instead of simply being increased to achieve more destructive results, would also need to be adapted to fit different military requirements, as was done with conventional explosives.⁶⁶

With these general premises upon which a "rational" war would need to be waged in the atomic age established, Fuller turned his attention to the future of the different armed services. Beginning with the navy, he noted that, during the Second World War, sea power had become increasingly integrated with land and air power, thanks to the aircraft carrier and amphibious warfare. He anticipated this development would continue

⁶⁵ J.F.C. Fuller, "Beware the 35-Minute War," *Maclean's*, June 15, 1946, 18, 55-56, 58.

⁶⁶ *Ibid.*, 55, 56.

in the future. Predicting (even before the two atomic bomb tests at Bikini Atoll) that large atomic weapons would be deployed more frequently against naval fleets than land targets, he believed that the principal countermeasure would be a reduction in the size of ships and an increase in their speed. Finally, he forecast that, with the development of long-range atomic rockets and long-range land-based aircraft, the battleship and aircraft carrier would be rendered obsolete. Nevertheless, he anticipated that, as long as military forces and supplies needed to be transported by sea, naval forces would be required to defend the sea lanes.⁶⁷

Turning to the army, Fuller similarly anticipated a reduction in the size of military formations accompanied by greater mobility and more powerful battlefield weapons “within the limits of usefulness.” The former would necessitate the increased use of air transport and airborne infantry, while the latter would be accomplished using tactical atomic weapons adapted for use on the battlefield.⁶⁸ The air force, while effectively rendering the navy obsolete, would be subordinated to the needs of the army, providing the main means of transportation for the hyper-mobile army of the future. Fuller predicted bombers and fighters would gradually be superseded by atomic rockets and the powerful anti-air explosives that would become the primary defence against enemy rockets and aircraft. Because of these developments, the integrated military of the future would be a hyper-mobile “airarmy” that could mount a surprise invasion of an enemy nation before atomic strikes could be launched.⁶⁹

⁶⁷ *Ibid.*, 56.

⁶⁸ *Ibid.*

⁶⁹ *Ibid.*

Given the demands of this future warfare, rather than a large military combining professional soldiers with volunteers and conscripts, Fuller's armed forces of the future would need to be a highly specialized, elite force "consist[ing] of 'special' and not 'average' men," "standing at arms day and night" and ready to be deployed wherever they would be required at a moment's notice. This integrated, elite force must, in turn, be overseen by a highly integrated command structure.⁷⁰ Fuller concluded by recommending the creation of a force of military scientists whose sole purpose would be to determine what the needs of the armed forces of the future would be. If this and his other recommendations were not heeded, he warned, the next major war might be lost in only 35 minutes.⁷¹

In September 1946, *Maclean's* published an article by American science journalist Howard W. Blakeslee, science editor of the Associated Press, who was among the journalists who had witnessed Operation Crossroads, the two atomic bomb tests conducted by the U.S. military at Bikini Atoll, in the Marshall Islands, in July of that year. These were the first such tests following the end of the war and were intended to test the effects of atomic weapons on a fleet lying at anchor in harbour. Blakeslee provided eyewitness accounts of both tests and analyzed their implications for a future atomic war. The Bikini tests, he argued, had a mixed impact on the widespread fear of atomic weapons that had arisen in the year following Hiroshima and Nagasaki. On one hand, by "show[ing] conclusively that present atomic bombs have definite limits," they had disproven "the supernatural and vague fears of ending the world." On the other hand,

⁷⁰ *Ibid.*, 56, 58.

⁷¹ *Ibid.*, 58.

they had brought attention to the “menacing” problem posed by radiation from atomic explosions.⁷²

Blakeslee reported that the first test, an air-dropped bomb detonated above the target fleet, had inspired “disappointment” in many of the journalists and U.S. Navy sailors observing the test from a safe distance. They had been expecting more of a “show.”⁷³ This disappointment had been mitigated when the journalists were allowed to tour the explosion’s aftermath. Blakeslee informed his readers that all ships within a quarter of a mile of the explosion’s centre had been sunk, and that ships within three quarters of a mile, both those sunk and those still afloat, had sustained severe damage, with “hundreds of almost incredible twists to steel,” heavy scorching of exterior hulls from the flash, and all radio and radar sets disabled. Ships beyond this distance, however, had been largely untouched, proving that the flash, heat, and blast of an atomic explosion “fall off very rapidly.”⁷⁴

In contrast to the initial disappointment that the first bomb had inspired in many onlookers, the second, an underwater detonation of a bomb suspended beneath a transport ship, proved to be, in Blakeslee’s words, “[o]ne of the most stunning and beautiful spectacles of all time.” A dome of water “about half a mile wide” initially rose out of the lagoon, quickly morphing, as it rose, into a column of water “a little more than 2,100 feet wide,” the top of which expanded to a diameter of two miles.⁷⁵ From this great cloud of water, there fell a radioactive shower, containing “the fission products of plutonium” as

⁷² Howard Blakeslee, “It Rained Poison,” *Maclean’s*, September 15, 1946, 13, 68-72.

⁷³ *Ibid.*, 13, 68.

⁷⁴ *Ibid.*, 68-69.

⁷⁵ *Ibid.*, 69-70.

well as “sea salt and other things made temporarily radioactive,” which settled on 82 of the 87 ships in the target fleet, out to a radius of three and a half miles. Drifting more than 50 miles in the direction of the wind, this fallout blanketed 36 square miles of the lagoon, lasting three to six times longer on the target ships than radiation from the air burst.⁷⁶

This radiation, concentrated enough on some ships to be deadly to human beings, might be “the greatest atomic menace to ships and men,” Blakeslee anticipated. He expressed concern about what would happen should such a bomb (or, alternatively, an atomic mine laid in peacetime for a surprise attack) explode underwater in “one of the world’s great harbors,” with a landward breeze carrying inland “the most dangerous precipitation in the world’s history.”⁷⁷ A secondary concern was the waves produced by the explosion. Moving at speeds of 41 miles per hour in shallow water, and 51 miles per hour in deep water, the waves were 100 feet high within less than half a mile from the centre of the explosion, decreasing to 10 feet by the time they reached the shore at three and a half miles. While Blakeslee noted that the waves had washed inland only 30 yards at Bikini and were one thousand feet apart by the time they reached the shore, he warned that an explosion closer to shore would likely prove more devastating against a coastal city like New York.⁷⁸

Having explained these effects of the two Bikini bombs on the target fleet, Blakeslee turned to a prediction of the defences that would most likely be innovated against such bombs in the context of future naval warfare. Although the air burst had crippled radio and radar sets, he anticipated that electronic equipment would likely be at

⁷⁶ *Ibid.*, 70-71.

⁷⁷ *Ibid.*, 70-71.

⁷⁸ *Ibid.*, 71.

least partly shielded aboard future warships.⁷⁹ He also predicted that ships both in harbour and in task forces at sea would be more widely dispersed to minimize the damage from an atomic blast, as would land installations. He conceded that it was less obvious how this could be done for coastal cities.⁸⁰ Future warships, he believed, would likely be designed with a shallower draft to mitigate the shock of an underwater explosion.⁸¹ Despite drawing attention to the dangers of radioactive fallout, Blakeslee also assured readers that there were defences against the radioactive particles scattered by an underwater blast. Decks could be immediately scrubbed to remove these particles – 15 to 20 percent had been successfully removed at Bikini even after they had dried on for five days. Protective clothing was also likely in the future. As for an air burst, however, Blakeslee wrote that 10 to 12 inches of steel, the only protection against the radiation of the initial flash, was “too much added weight to be feasible,” posing problems for future warship designers to overcome.⁸² Finally, he expressed confidence that traditional anti-aircraft defences would be useful to some extent against an enemy bomber carrying an atomic bomb, making it far more difficult for it to reach its intended target.⁸³ In the meantime, as long as atomic warfare remained merely a future possibility, the U.S. would have a lead over other nations in the valuable knowledge gained from the Bikini tests, both in terms of the effectiveness of their own bombs against enemy targets, as well as the design of passive defences, such as city construction and ship design.⁸⁴

⁷⁹ *Ibid.*

⁸⁰ *Ibid.*

⁸¹ *Ibid.*, 71-72.

⁸² *Ibid.*, 72.

⁸³ *Ibid.*

⁸⁴ *Ibid.*

In the late summer and fall of 1947, retired Colonel Wallace Goforth, former Director of Staff Duties (Weapons) and former Deputy Director General of Defence Research for the Canadian Army, contributed three essays to *Saturday Night* and *Maclean's* in which he offered his professional opinions on a potential future atomic conflict, and particularly on its implications for Canadian national defence.⁸⁵ This study will concentrate on the longest and most detailed of Goforth's essays, published in *Maclean's* in October. It repeated many of the major points from his two essays in *Saturday Night* but expanded upon these in greater detail. Beginning from the premise that, as long as war remained an option for nations in the settlement of international disputes, "we in Canada cannot afford to ignore defense against the atom bomb until the danger of its use is imminent," Goforth urged readers to think actively about the nation's future defence against atomic attack. Even if the majority of an enemy nation's attacking bombers were intercepted *en route* to their targets, he warned, only 25 would need to make it through to achieve the enemy's objective "as far as this country is concerned."⁸⁶

In such an attack, wrote Goforth, every province except Prince Edward Island could expect to have its main cities targeted. Major cities such as Halifax, Quebec City, Ottawa, Hamilton, London, Windsor, Kitchener-Waterloo, Regina, Saskatoon, Edmonton, Calgary, and Victoria would be left "blackened ruins," while Montreal, Toronto, and Vancouver, too large to be destroyed by a single bomb, would nonetheless

⁸⁵ As Andrew Burtch notes in his study of Canada's Civil Defence agency, Goforth was "ideally placed" to comment on the realistic threat of an atomic attack against Canada, having been partly responsible for the creation of the Defence Research Board (DRB), established earlier that year and tasked with investigating Civil Defence measures, as well as his Second World War-era experience in weapons research and his access to DRB chairman Dr. Omand Solandt, the only Canadian to accompany the British mission to Japan to investigate the effects of the atomic bomb dropped on Hiroshima. Andrew Burtch, *Give Me Shelter: The Failure of Canada's Cold War Civil Defence* (Vancouver and Toronto: UBC Press, 2012), 21-23.

⁸⁶ Wallace Goforth, "If Atomic War Comes," *Maclean's*, October 15, 1947, 9, 66, 69-72.

have their downtown sections “gutted.” Goforth singled out Winnipeg as Canada’s most vulnerable city in the event of an atomic attack because of its flat topography, layout, cold winter temperatures, and the frame construction of most of its buildings. He estimated that, in the event of an atomic attack, the city would suffer 40,000 killed, 60,000 injured, and 200,000 made homeless.⁸⁷ Goforth estimated the death toll from a hypothetical attack of this kind at about 700,000 (“seven times greater than the combined losses of Canada in battle dead during World Wars I and II”) in addition to 750,000 seriously injured and at least 650,000 made homeless. “It needs little imagination,” he continued, to realize the extent of the disaster represented by such an attack should Canada be unprepared: its government would cease to exist “for all practical purposes,” while its economy would “largely be laid waste.”⁸⁸

Having laid out this frightening vision of a future atomic attack on Canada, Goforth urged Canadians to devise, during the next 10 to 15 years, a “workable system of civil defense,” which he firmly believed was possible. He doubted that a major war involving an attack on North America was likely within the next 10 to 12 years. He also assumed that any conflict that broke out earlier than the end of the 1950s would be fought mainly with conventional weapons, as no power other than the United States would have accumulated enough atomic bombs, intercontinental bombers or supersonic interceptors to deploy these weapons effectively. While Goforth estimated that the U.S. would, “if it wished,” be able to wage a long-range atomic war by 1950, he assumed that any “potential aggressor” would lag several years behind the U.S. technologically. However,

⁸⁷ *Ibid.*, 9, 66.

⁸⁸ *Ibid.*, 66.

he cited “ample evidence” that “at least one great power” (not named by Goforth, but presumably the Soviet Union) was doing its “very best” to close this gap. He argued that this power would not attack North America until it had accumulated at least 500 atomic bombs and 2,500 bombers with a range of at least 3,000 miles, enough to destroy or cripple North America’s industry and military defences in an all-out surprise attack. This was unlikely to occur before 1962.⁸⁹

Countering the argument, “frequently encountered” since August 1945, that there was “no effective defence” against the atomic bomb, Goforth described it as “a very special weapon with exceptional limitations.” Due to the manner in which it functioned, he argued, its destructive capacity was essentially fixed and it could not be made significantly more or less powerful than the bomb dropped on Nagasaki. It was also “exceedingly costly” to manufacture, with a highly complex production process, and fissile material was not commonly found in “economically attractive” quantities.⁹⁰ In addition to these limitations, Goforth, sharing the widespread optimism over the future use of atomic energy explored in Chapter Three of this thesis, expressed his hope that, by 1967, peaceful uses of fissionable material would have become so essential to the global economy that “even the most power-hungry aggressor” would be discouraged from diverting the precious material to military uses. On this basis, he believed an all-out atomic war would only be a serious possibility to guard against during a fairly narrow window from the early to the late 1960s.⁹¹

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*, 66, 69.

⁹¹ *Ibid.*, 69.

Looking ahead to a potential atomic war within this window, Goforth anticipated three possible types of atomic attack. The first, and most common, was the air burst, 500 to 2,000 feet above the target. Within a quarter of a mile of the centre of the explosion, 90 per cent of people would be killed and all buildings would be destroyed or badly damaged. Beyond this quarter-mile radius, the level of death, injury and structural damage would become gradually less severe out to a maximum radius of two and a half miles. Given the possibility that a bomb could be dropped up to half a mile off target, the actual “danger area” in any given city was six miles in diameter.⁹²

Secondly, for a precision attack on a “small but vital” target like the Canadian-American locks at Sault Ste. Marie, an atomic bomb would be designed to penetrate the Earth’s surface prior to detonation; a deep-penetration bomb would leave a crater about 1,000 feet across and 300 feet deep, while an explosion at or close to the surface would leave a wider but shallower crater. An atomic-bomb crater would be dangerously radioactive for months, forcing the evacuation of surrounding areas.⁹³

The third type of atomic attack would be an underwater burst, such as that at Bikini the previous year. The bomb used in such an attack might be dropped from a ship in a harbour under cover of darkness or fog with a delayed-action fuse, or by a low-flying aircraft a few seconds prior to detonation. Potential Canadian targets included Halifax, Vancouver or (less likely, because of its smaller harbour) Toronto. As had happened at Bikini, the water thrown up by the explosion would deposit radioactive particles over the ships in the harbour and on the surrounding land, leaving ships and areas of the city

⁹² *Ibid.*

⁹³ *Ibid.*

closest to the waterfront dangerously radioactive for months or even years. While precise results would vary based on factors such as the depth of the harbour, wind direction and the layout and topography of the target city, Goforth estimated that, in Vancouver, an underwater burst would kill 8,000 people and injure 20,000, mainly through radiation poisoning, while an air burst would kill 35,000 and injure 60,000. The only real advantage of an underwater burst over an air burst was that it would leave the target area irradiated for a much longer period.⁹⁴

While most atomic bombs would be carried to their targets by bombers flying at altitudes of at least 30,000 feet, for “precision” targets such as the Sault Ste. Marie locks, they might be delivered by low-flying aircraft at “treetop height.” Coastal cities might be attacked by ship- or submarine-launched atomic missiles. As for the possibility of smuggling atomic bombs to their targets prior to the outbreak of war and detonating them in a surprise attack, Goforth admitted this was theoretically feasible. However, he argued that it would be risky in practice. If five hundred bombs with timed fuses were smuggled to their targets, and just one were discovered, this would trigger a “feverish” search for the other 499, potentially compromising the entire operation.⁹⁵

Regarding the most likely timing of an attack, since the majority of key North American targets lay within the Eastern time zone, the most likely time would be 3 p.m. Eastern Time on a weekday, when the concentration of people in city centres was greatest. The most likely date would be mid-December, taking advantage of winter weather and busy downtown shopping malls ahead of the holiday season, or late January,

⁹⁴ *Ibid.*

⁹⁵ *Ibid.*

capitalizing on the coldest temperatures of the year. Alternatively, if the Sault Ste. Marie locks were a major target, an attack might take place at the beginning of the Great Lakes shipping season in mid-April, when North American raw material stockpiles were at their lowest point of the year.⁹⁶

All these myriad details, Goforth argued, added up to “one strategic fact,” namely that the atomic bomb was a “known and measurable danger” against which an effective defence could be devised within the next ten to fifteen years. There were four lines of defence against the atomic bomb for Canada, according to Goforth. The first was for Canadian diplomats to work to resolve international differences to make a future war as unlikely as possible, while the second was for the “free nations” to retain their existing edge in scientific research and technological development, which Goforth stressed was “a matter of life and death.” Furthermore (returning to his earlier optimism regarding the peaceful use of atomic energy) if scientists were able to divert the use of fissionable materials from warlike to peaceful uses by the late 1950s instead of the late 1960s, this would eliminate the entire problem of preparing for a potential atomic war in the 1960s.⁹⁷ The third line of defence was the Canadian military, which, in the event of an atomic attack against Canada, could combine early detection of incoming enemy aircraft and missiles with interception of these threats before they could reach their targets. Because the military could not concentrate its entire strength on defence, an impenetrable defence was impracticable; Goforth expressed optimism, however, that Canada’s air defence

⁹⁶ *Ibid.*, 69-70.

⁹⁷ *Ibid.*, 70.

could be made sufficiently effective to dissuade an attacker for fear of the inevitable counterattack.⁹⁸

The final line of defence would be the “passive” civil defence of Canadian cities. The aim of civil defence measures would be to “mitigate” the damage should an atomic weapon actually strike its target. Goforth dismissed the ideas, promoted by some commentators since 1945, of moving cities underground or decentralizing them into a constellation of smaller communities with sufficient distance between them to minimize damage from an atomic blast. At most, some “vital” government services might need to move underground and subway systems might be used as emergency shelters, as had occurred in the United Kingdom during the Second World War. As for decentralization, Goforth believed it would be possible, and economically beneficial, to construct new industrial facilities in suburban areas instead of in vulnerable city centres; however, this would need to be done “naturally and economically.”⁹⁹ He also advocated the use of stronger building materials in future building construction within the likely blast radius. Concrete structures would stand up much more effectively to an atomic blast than brick or frame structures; they would also more effectively shield a building’s occupants against the lethal gamma radiation from the bomb’s initial flash.¹⁰⁰

While these suggestions were “aimed more at the protection of property than of life and limb,” Goforth’s most urgent recommendation was for Canada to build a civilian Air Raid Precaution (ARP) organization “at least as effective” as that maintained by the United Kingdom during the Second World War. He doubted that this could be established

⁹⁸ *Ibid.*

⁹⁹ *Ibid.*, 70-71.

¹⁰⁰ *Ibid.*, 71.

in time for a major emergency if left up to the federal government, or even to municipal governments; instead, “public-spirited” volunteer groups “devoted to the welfare” of their city should take the lead.¹⁰¹ The Canadian ARP organization envisioned by Goforth would arrange the gradual construction of underground concrete shelters over a ten-year period; encourage hospitals and other essential services to maintain a roster of emergency reserve staff, who would be called upon to practice their duties at least once a year; establish a system of air-raid wardens, who would drill at least once a year; work out plans for emergency evacuation of nonessential personnel from cities and for billeting them in smaller towns; install warning sirens; coordinate with the military, police, and fire services; and conduct annual drills of the entire ARP organization beginning in 1955.¹⁰²

Goforth concluded his appeal for civil defence preparations by optimistically predicting that this could be accomplished without extending government control and undermining the “cherished” personal freedoms of Canadians. Warning that this would indeed be inevitable if civil defence preparations were left entirely to government, he argued that a well-organized system of civil defence masterminded by voluntary organizations could reduce casualties to a “small fraction” of the worst-case scenario and even dissuade a potential attacker by presenting it with “unprofitable” targets.¹⁰³

¹⁰¹ *Ibid.*

¹⁰² *Ibid.*, 71-72.

¹⁰³ *Ibid.*, 72. Despite Goforth’s exhortations, Canadian Civil Defence preparations proceeded cautiously in the late 1940s, reflecting the Liberal government’s reluctance to prepare for a new conflict so soon after the Second World War. Only after the development of the atomic bomb by the USSR in 1949, followed by the outbreak of the Korean War in 1950, did preparations begin in earnest. Burtch, *Give Me Shelter*, 36.

South of the border, Goforth's reassuring confidence in the ability of North Americans to prepare adequately for a future atomic war, provided they took the threat seriously, was echoed by a pair of essays by General Carl Spaatz, the recently retired Chief of Staff of the U.S. Air Force, published in *Life* in the summer of 1948. In these two essays, Spaatz, who during the Second World War had overseen the American strategic bombing campaign against Germany and subsequently against Japan, offered his views on the likely role of airpower in a potential future conflict with the Soviet Union. He began by praising Congress' recent approval of a 70-group air force as inaugurating "a tremendous new era in American strategy" in which airpower formed the core of the country's strategic thinking. However, Spaatz explained, he feared the public had accepted this shift "without inquiring too deeply into the fine points of modern warfare." Accordingly, he sought to offer readers "the airman's view."¹⁰⁴

Unlike the soldier and sailor, in Spaatz's view, the airman did not think in terms of conventional geographical barriers such as mountains and bodies of water, but, rather, only in terms of the range of aircraft from their launching point. In this respect, Spaatz argued, he was "something of a revolutionary." Some influential military men, he acknowledged, continued to downplay the decisiveness of airpower, pointing out that the Second World War had been won through a combined effort of the armed services. Spaatz conceded this point, but emphasized what he claimed was "the fundamental lesson of the war in terms of airpower": "[E]nemy planes enjoying control of the sky over one's head can be as disastrous to one's country as its occupation by physical invasion," as

¹⁰⁴ Carl Spaatz, "If We Should Have to Fight Again," *Life*, July 5, 1948, 34-36, 39-40, 43-44.

evidenced by the devastation inflicted on Germany and Japan.¹⁰⁵ Beyond the “sheer mechanical efficiency” displayed by the Allied strategic bombing campaigns against those two countries, the advent of the atomic bomb had driven home the realization that “through airpower a force has been turned loose upon the world that cannot be turned back.”

Now that this realization had been driven home, Spaatz asked rhetorically, what was there to prevent another power “of comparable resources” from copying the methods of strategic airpower employed by the U.S. in the Second World War and turning them against the U.S.?¹⁰⁶ The only power capable of doing so in the near future, he averred, would be the USSR. Spaatz acknowledged that it might “smack of cynicism” to a civilian reader to begin planning for the Third World War so soon after the Second but he proposed to “study the facts objectively.” If the goal of the Soviets was in fact world conquest, he argued, then the U.S., as the world’s premier sea and air power and the sole possessor of the atomic bomb, presented them with “the most formidable foe ever seen.”¹⁰⁷ Although, in a “rational world,” American industrial, naval, air, and atomic supremacy should ensure “half a century” of peace, because of the rapid advance of military technology, the country’s military establishment would need to have “a sequence of plans” based upon a likely future timeline of technological development, rather than a single long-term plan. Spaatz divided the near future into two phases, before and after the inevitable development of the atomic bomb by the USSR, estimated at a minimum of three to four years in the future. To these two phases, he added a third, in which long-

¹⁰⁵ *Ibid.*, 35.

¹⁰⁶ *Ibid.*, 35-36.

¹⁰⁷ *Ibid.*, 36.

range guided missiles and supersonic intercontinental bombers would be capable of carrying on a war between the continents. He estimated this would be fully possible within 25 years.¹⁰⁸

Looking ahead to a potential war in Phase I, before the Soviets had developed the atomic bomb, Spaatz anticipated that the USSR would lack the long-range airpower and atomic weaponry to strike a decisive blow against American industry.¹⁰⁹ He argued that the Second World War had shown that it was “theoretically possible” to “fatally cripple” Soviet industry through strategic bombing of “a few hundred square miles” where such industries were concentrated.¹¹⁰ These areas lay in the vicinity of Moscow, the Ukraine-Volga region, the Caucasus, and the Ural region, in addition to “a fast-growing center of industry in Siberia.” Until the U.S. Air Force’s B-29 Superfortress had been replaced in sufficient numbers by newer, longer-range strategic bombers such as the B-36 Peacemaker, the U.S. would need a ring of air bases surrounding the USSR in the UK, Western Europe, North Africa, the Middle East, the Indian subcontinent, China and Japan to place all these areas within the attack radius of the American B-29s.¹¹¹

Although Spaatz believed the U.S. had the power to gain control of Soviet airspace if these necessary preconditions were met, he warned that, even in a “Phase I” war, the U.S. would not be invulnerable to Soviet air attack. While, during the Second World War, the Soviets had largely disregarded the strategic value of airpower, with their air forces performing a tactical role in support of ground forces, Spaatz believed that the

¹⁰⁸ *Ibid.*, 36, 39.

¹⁰⁹ *Ibid.*, 39.

¹¹⁰ *Ibid.*

¹¹¹ *Ibid.*, 40.

devastation from Allied bombing that they had witnessed when their armies invaded Germany in 1945 had made a deep impression upon them.¹¹² Coincidentally, months earlier, in the summer and fall of 1944, three American B-29s, flying against Japan from bases in Chinese-held territory, had been forced to make emergency landings at Vladivostok in neutral Soviet territory after becoming lost or damaged. The Soviets had treated the crews well and returned them but confiscated the B-29s; repeated U.S. attempts to reclaim them had been unsuccessful. Beginning at the end of 1945, and continuing for two years, between one and three B-29s had been periodically spotted in Moscow's airspace. These were either the originals or Soviet copies. Finally, in 1948, at the annual May Day military parade, the Soviets had officially unveiled the new Tupolev Tu-4 bomber, "obviously" a reverse-engineered copy of the B-29. Spaatz estimated the Soviets possessed "several hundred" Tu-4s and were manufacturing more "at a fairly good rate."¹¹³

While North America lay outside the Tu-4's attack radius from bases in the USSR, Spaatz pointed out that major U.S. industrial centres did lie within its "one-way, no return" range from bases in Siberia and the Russian Arctic. In the event the Soviets developed the atomic bomb, and accumulated it in sufficient numbers, they would be able to devastate U.S. industry by sending out their bomber force on a one-way mission. This fact, Spaatz argued, represented the "final piercing" of the "ocean cushion" that had shielded the U.S. from attack during the First and Second World Wars; he tempered this unsettling prospect somewhat by reassuring readers, echoing Goforth, that, even with the

¹¹² *Ibid.*, 40, 43.

¹¹³ *Ibid.*, 43-44.

atomic bomb and a long-range bomber, an enemy nation was unlikely to go to war with the U.S. until it had accumulated enough bombs to fight the U.S. “upon equal terms.”¹¹⁴

At the beginning of his second essay, published the following month, Spaatz estimated that the “dividing line between Phase I and Phase II” – the development of the atomic bomb by the USSR – would likely be crossed by the end of 1952. Analyzing how the Soviets would fight a “Phase II” war, he argued that Soviet military strategy would be “fairly orthodox,” based upon “massive armies” supplied by heavy industry. Soviet commanders were likely thinking “hard and profoundly” about the “strategic potentialities” of air power, like their American counterparts. However, they would need to increase their country’s industrial base as a prerequisite to building a strategic air force to match that of the U.S.¹¹⁵

Spaatz anticipated that Soviet strategy in a “Phase II” war would be a “compromise.” While seeking decisive victory via a land war in Europe, the Soviet Union would simultaneously seek to harm or even “temporarily paralyze” America’s industrial base with a surprise attack by hundreds of long-range bombers armed with atomic bombs. Such an attack would harm the ability of the U.S. to support and supply its forces and allies overseas, but Spaatz argued that it would not be “decisive.” America’s industrial base was simply too large to be destroyed in a single attack. To defeat the U.S., an enemy would need to follow up such a strike with a “determined effort” to win control of American airspace, which Spaatz doubted would be within Soviet capabilities “for some time to come.”¹¹⁶ Instead of achieving a decisive blow, the Soviet atomic strikes

¹¹⁴ *Ibid.*, 44.

¹¹⁵ Carl Spaatz, “Gen. Spaatz on Atomic Warfare,” *Life*, August 16, 1948, 90-94, 97, 99-100, 103-104.

¹¹⁶ *Ibid.*, 91-92.

upon the U.S. would be intended as a “preventive measure,” damaging the U.S. enough to allow the USSR to expand militarily in Europe and Asia, capturing vital industries and raw materials, and denying these to the U.S. along with the forward bases from which American bombers could operate against the USSR. The American bomber force would then be forced to operate at a longer range, with diminished bomb loads and limited fighter escort.¹¹⁷ The loss of resources would further harm the American economy, allowing the USSR to wear the U.S. down in an unwinnable war of attrition of the kind it had successfully waged against Napoleonic France and Nazi Germany.¹¹⁸

To counter this likely Soviet strategy, Spaatz offered four key recommendations for successfully waging a “Phase II” war. Firstly, the sea lanes connecting North America to Europe and Asia must be kept open.¹¹⁹ Secondly, an effective air defence of North America, while unable to completely prevent an air attack, would at least “minimize [its] effectiveness.” Such an air defence would require “well over 1,000 fighter planes,” along with “many thousands” of personnel, as well as “several hundred” radar stations, constructed in concert with Canada. Spaatz warned that this would be “only the beginning” of the necessary defence measures, a likely allusion to the kind of civil defence measures recommended by Goforth.¹²⁰

Thirdly, the U.S. must maintain “in a state of constant readiness” a strategic air force “kept modernized and at full strength.” Restating his opinion that Western air strength was the only real counterweight to Soviet military strength in Europe, Spaatz

¹¹⁷ *Ibid.*, 92-93.

¹¹⁸ *Ibid.*, 93-94.

¹¹⁹ *Ibid.*, 94, 97.

¹²⁰ *Ibid.*, 97.

stipulated that the American strategic air force must function as a deterrent to prevent the outbreak of a third world war. It must also, in the event of war, be prepared to answer the opening Soviet blow with “at least an equally stunning blow,” and to maintain a strategic air offensive to thwart Soviet plans. This strategic air force should also be supported by “a vigorous aircraft industry.”¹²¹

Fourthly, even with the B-29’s postwar range of over 2,000 miles, the U.S. would still require forward bases in Western Europe, North Africa and the Middle East from which to project its strategic airpower against the USSR. Spaatz acknowledged that naval and ground forces would be required to “secure, hold and support” these bases, while American diplomacy would need to gain access to these geographical regions for American airpower. From these bases, however, American air forces could assure ultimate victory by winning control of Soviet airspace.¹²² Spaatz assured readers wary of such a global military commitment that the global projection of American airpower might very well usher in a “prolonged era of general peace” among the great powers comparable to that of the previous century, which had been undergirded by the UK’s ability to project its naval power globally.¹²³

An additional key to American victory in a “Phase II” war was the concentration of the USSR’s state-owned and centrally planned industries, which made Soviet industry more vulnerable to aerial attack compared to the more geographically dispersed, less vertically integrated, and privately owned industries of the U.S.¹²⁴ The chances of

¹²¹ *Ibid.*, 94, 97, 99.

¹²² *Ibid.*, 99.

¹²³ *Ibid.*

¹²⁴ *Ibid.*, 100.

American victory in a Phase II war were good, Spaatz told readers, if the country adhered to his expert recommendations and those of his fellow airmen.¹²⁵

Summarizing the chances of American victory in each phase, Spaatz anticipated that, in Phase I, the USSR, lacking the atomic bomb or a long-range strategic air force, would not be in a position to damage the U.S badly. Although, in Phase II, the USSR, now equipped with atomic bombs and a long-range strategic air force to deliver them, would be in a position to inflict severe damage on the U.S., Spaatz assured readers that, given an adequate network of forward air bases, American airpower would ultimately prove decisive in either a Phase I or Phase II conflict.¹²⁶

By 1947-1948, then, the earlier pessimistic atomic war scenarios of 1945-46 had given way, in both *Life* and *Maclean's*, to more optimistic views which, while not denying or minimizing the significant threat posed to Canada and the United States by an atomic attack, reassured readers who may have been frightened by the earlier scenarios that such an attack would not necessarily be decisive, that an adequate defence could be prepared in advance, and that military victory was still possible in an atomic-age conflict. Importantly, by 1948, in a sign of the deepening Cold War, Spaatz had explicitly designated the Soviet Union as the enemy in such a future conflict. The development of

¹²⁵ *Ibid.*, 100, 103.

¹²⁶ *Ibid.* As historian Gregg Herken notes in his study of the evolution of American nuclear strategy between 1945 and 1950, Spaatz's arguments on the decisiveness of airpower represented the views of "a small number of military theorists." Contradicting the theories of airpower advocates in the 1920s and 1930s, the U.S. Army Air Forces' (USAAF) 1946 *Strategic Bombing Survey* concluded that Second World War strategic bombing had not proven decisive, killing "a vast number" of German and Japanese civilians without significantly impacting industrial production or breaking the will of the Germans and Japanese to fight. Gregg Herken, *The Winning Weapon: The Atomic Bomb in the Cold War, 1945-1950* (New York: Alfred A. Knopf, 1980), 209-212, 216.

the bomb by the USSR in 1949, however, would signal a return to earlier anxiety, although now within the altered political circumstances of the Cold War.

“War Can Come; Will We Be Ready?”: Atomic War Anxiety, Fall 1949-Winter 1950

Following the revelation by President Harry S. Truman, at the end of September 1949, that the USSR had tested an atomic bomb of its own in August, thereby crossing the dividing line between Spaatz’s “Phase I” and “Phase II” far earlier than most Western observers had anticipated, the discussion around a potential future atomic war in the pages of Canadian and American magazines was suddenly transformed from a discussion of a hypothetical future scenario to one of a realistic near-future catastrophe. In November 1949, *Saturday Night* columnist Willson Woodside analyzed the public debate between the branches of the U.S. military over how the Western powers should fight a potential near-future war with the USSR. Woodside noted that this bitter, highly publicized debate left “very few secrets” of American strategy in the event of war. Once it had ended, key controversies would need to be resolved. In particular, the U.S. would need to decide whether it should focus its preparations on meeting a Soviet land offensive in Europe or air attack on North America and whether it should prioritize a strategic bombing force over its navy. Controversy also raged over whether a third world war could be rapidly won through an “atomic blitz” on Soviet industry, or whether it was necessary to plan for a drawn-out conflict in the style of the Second World War.¹²⁷

¹²⁷ Willson Woodside, “If We Had to Fight Russia,” *Saturday Night*, November 15, 1949, 11-12. Robert Teigrob views Woodside’s ideological shift during the second half of the 1940s as being emblematic of the broader shift within North American print media in this era. An “unflagging” supporter of world government noted for his sympathy toward the USSR’s foreign policy positions during the immediate

Examining the controversy over how best to plan for a third world war, Woodside cited the U.S. Navy's (USN) Admiral Dan Gallery, who had argued publicly that the atomic bomb had not invalidated pre-1945 military strategy and that "push-button warfare" involving intercontinental rockets with atomic warheads was "many years away." He also noted a report by a Reuters journalist who had witnessed military maneuvers in the Canadian north the previous winter and had concluded that a large-scale Soviet invasion of North America through the Arctic was an "impossibility."¹²⁸ In light of these facts, Woodside, like Spaatz, appraised the "actual threat" from the USSR as being twofold: that of a land offensive in Europe and that of an air attack against North America to strike at the "strongest member" of the Western alliance, the United States. The military strategy of the North Atlantic Treaty Organization (NATO) countries, therefore, was focused upon maintaining sufficient forces to meet a Soviet invasion of Western Europe as well as upon keeping the lines of resupply and reinforcement between Europe and North America open. There was "no present thought" of building up sufficient forces to attempt an invasion of the USSR.¹²⁹

Despite this broad agreement on strategy, there remained intense public disagreement among American military leaders regarding the proper roles of naval and air power in a third world war. U.S. Navy admirals warned, countering the arguments of airmen like Spaatz, against placing too much faith in strategic bombing. In the Second

postwar months, from the 1946 Gouzenko spy revelations onward he increasingly became "something approaching" a hardline Cold Warrior. Teigrob, *Warming Up to the Cold War*, 65.

¹²⁸ *Ibid.*, 11.

¹²⁹ *Ibid.* Although the North Atlantic Treaty had been signed in April 1949, NATO "barely existed" as a military alliance before the outbreak of the Korean War in 1950. The outbreak of war in Korea, and the concerns it spawned regarding the possibility of a Soviet invasion of Western Europe, would lead to the serious commitment of military forces to this peacetime alliance for the first time. Bothwell, *Alliance and Illusion*, 71, 84, 93-99, 103-104.

World War, according to Woodside, a tonnage of high explosives estimated as being the equivalent of five hundred atomic bombs had been dropped on Germany, yet this had failed to break the Germans' will to fight, ultimately making the physical invasion and conquest of Germany necessary. Furthermore, the admirals argued, large-scale atomic bombing of cities would be immoral and, as J.F.C Fuller had argued in *Maclean's* earlier in the decade, would undermine the entire purpose of a military victory, namely "to create favourable conditions for establishing a worthwhile peace afterwards." Countering claims by U.S. Air Force (USAF) generals that the USAF's new strategic bomber, the B-36, could deliver the atomic bomb to its target in the USSR and return safely to base, the admirals argued there was a heavy risk of unescorted B-36s being intercepted by enemy fighters and suffering "unacceptable casualties." Furthermore, the failure of the B-29 used in the first Bikini test in 1946 to hit its intended target under optimal conditions did not bode well for the odds of the B-36 accurately hitting its targets in a real atomic war.¹³⁰ Woodside, evidently persuaded by the admirals' arguments, concluded that all proposals to win a third world war – and achieve a profitable peace afterwards – through atomic bombing "need thorough questioning."¹³¹

By early 1950, a third world war in the near future had come to be seen as such a serious possibility that *Life* devoted its issue of February 27, 1950, to examining American readiness for such a conflict. The magazine's view of American military preparedness was decidedly negative. The editorial in this issue (which featured a colour

¹³⁰ *Ibid.*, 12.

¹³¹ *Ibid.* Gregg Herken notes that the "Moral Revolt of the Admirals" failed to bring about any serious re-examination of U.S. nuclear strategy, while Paul Boyer notes that cynics regarded the admirals' objections as being rooted in the dominant role given to the USAF in planning for nuclear war. Herken, *The Winning Weapon*, 290; Boyer, *By the Bomb's Early Light*, 345.

photograph of Test Baker, the second Bikini test of 1946, on the cover) acknowledged that “Formal war between the possessors of nuclear weapons means the obliteration of society,” and that it was therefore necessary “to avoid war, to control nuclear weapons and to fashion a formula for permanent peace.” At the same time, however, stressing the “single, elemental fact that Soviet Communism is committed to the destruction of the free world,” and dismissing any notion of permanent coexistence between “the two worlds of freedom and bondage,” *Life* proposed to examine “the military defenses of the U.S. in light of the military capacity of the Soviet Union,” arguing that, “although there is no sure safety in military defense alone, there is sure ruin in any miscalculation or neglect of military defense.”¹³²

Life’s overall pessimistic view of America’s readiness for a third world war was captured in the editorial’s charge that “the defense necessities of the U.S.” had been “avoidably underestimated” by the Truman administration.¹³³ In an article in the same issue, *Life* accused the administration, by trimming the U.S. defence budget, of leaving the country vulnerable in the event of war by keeping its defensive capacities “arbitrarily” limited compared to those supposedly possessed by the USSR, despite senior officials’ public insistence to the contrary.¹³⁴

In another article analyzing how the USSR might launch a sudden war against the Western alliance, *Life* presented statistics demonstrating that the USSR had overtaken the U.S. in both war production and actual military strength. Despite the widespread belief that America’s superior industrial capacity could restore its military advantage in the

¹³² “The Nature of the Enemy,” *Life*, February 27, 1950, 30-31.

¹³³ *Ibid.*, 30.

¹³⁴ “War Can Come; Will We Be Ready?,” *Life*, February 27, 1950, 19.

event of war, the article warned that the supposed Soviet superiority in conventional weapons could be decisive when coupled with its possession of the atomic bomb.

Echoing previous commentators like Spaatz and Woodside, *Life* anticipated that Soviet strategy in the event of war would be to launch a long-range air attack with atomic bombs against American cities and industrial targets, damaging the U.S.'s ability to mobilize its offensive capability while Soviet armies invaded Western Europe and the Middle East.¹³⁵ Despite this unsettling prediction, the article cited unnamed "U.S. military men" as claiming that the USSR would not be ready for war "for at least two years." It urged American leadership to take advantage of that time to improve the country's military capabilities and dissuade the Soviets from launching a bid for world conquest.¹³⁶

In subsequent articles in the same issue, *Life* identified areas in which it felt U.S. defensive capabilities were lacking and offered recommendations for improving them. One article, on radar, noted that defensive radar networks to detect incoming Soviet bombers were arrayed around only "a handful of strategic areas." The Canadian and U.S. governments had both allocated funds to rectify this deficiency. The article worried, however, that an "airtight" radar screen around North America was "probably" more than both countries could afford.¹³⁷ Another article claimed the modern B-36 intercontinental bomber and the most modern jet fighters and interceptors were not yet available in

¹³⁵ "How Could Soviet Attack Come?," *Life*, February 27, 1950, 20-21.

¹³⁶ *Ibid.*, 21.

¹³⁷ "How Much for Radar?," *Life*, February 27, 1950, 22-23.

sufficient numbers, forcing the USAF to rely on older, “obsolescent” aircraft like the B-29.¹³⁸

In a later article in the same issue, *Life* illustrated for its readers what the likely effect of a Hiroshima-type atomic bomb would be on an “average” American city. Citing a recent Department of Defense (DoD)-Atomic Energy Commission (AEC) report on the damage done to Hiroshima and Nagasaki, the article claimed the blast of an atomic bomb alone, without its accompanying heat and radiation, could “wreck” an American city of 900,000.¹³⁹ Laying two atomic bomb blast radii over a map of “Central City,” a fictional, generic American city (pop. 900,000), it illustrated the vulnerability to atomic bombing of cities whose industries and other critical facilities were clustered together, rather than dispersed. *Life* argued, as Goforth had in *Maclean’s* over two years earlier, that the death and destruction caused by the bomb would be total within a half-mile radius. Though “many” buildings constructed of steel and reinforced concrete would remain standing within a three-mile radius, the blast would destroy brick houses, sheds and warehouses within a two-and-a-half-mile radius. *Life* pessimistically predicted that, of all American cities, “only a few California cities,” built to withstand earthquakes, would fare significantly better than Central City in the event of an atomic bombing.¹⁴⁰

By 1949-1950, then, the development of the Soviet atomic bomb had rekindled the earlier anxieties over the vulnerability of North America to atomic attack, the very anxieties commentators in 1947-1948 had attempted to assuage. At that time, of course, the USSR had not been expected to develop the bomb so soon. The first Soviet atomic

¹³⁸ “How Much Airpower?,” *Life*, February 27, 1950, 28-29.

¹³⁹ “A-Bombs on a U.S. City,” *Life*, February 27, 1950, 81-82, 84, 89.

¹⁴⁰ *Ibid.*, 81.

bomb test in 1949 had upended the carefully laid-out timelines of commentators such as Goforth and Spaatz and triggered fresh worries over the readiness of the newly formed NATO alliance for a potential conflict with the Soviet Union. While broad agreement reigned on the need to prepare for such a war and over the manner in which it was likely to be fought, *Saturday Night's* Woodside demonstrated that at least some of the earlier attitudes of 1945-1946 survived, particularly skepticism regarding the possibility of victory in such a conflict. A fundamental shift had nevertheless occurred since 1945: although the atomic bomb itself had earlier posed a threat to the physical security of North Americans, it was now the Soviet Union, armed with atomic bombs, which had become the threat to be prepared against. As the next chapter will show, this shift had fatal consequences for efforts to place atomic energy under international control.

Chapter 2: “Nations Must Literally Unite or Perish”: The Failure of the Campaign for International Control

“In the Service of All Mankind”: The Push for World Government and International Control of Atomic Energy, 1945-1946

In the weeks following Hiroshima and Nagasaki, editorials and opinion pieces in *Life*, the *Saturday Evening Post*, *Saturday Night* and *Maclean's* began to promote the concept of a world federal government as the most obvious solution to the threat that atomic weapons posed to the continued existence of civilization. *Saturday Night*, in its first editorial following the atomic bombings of Hiroshima and Nagasaki, on August 11, 1945, declared that the “incredible power of destruction” represented by the atomic bomb “makes the continued existence of civilization absolutely impossible without the aid of some kind of effective world government.”¹⁴¹ “[A] world authority ... animated by a profound moral preference,” the editorial continued, was more trustworthy to control such an incredible power source than “a national state responsible to nobody but itself and its citizens.”¹⁴² The editorial stressed to readers that “the doctrine of complete and unmitigated national sovereignty” was untenable so long as it was possible for “dishonest and aggressive” nations to acquire the bomb.¹⁴³

In its August 25 editorial, *Saturday Night* argued that the global situation resulting from the development of the atomic bomb, a situation in which “two of the Great Powers [the United States and the United Kingdom] ... are in a position to impose their will without any limit whatsoever upon all the rest of the world,” was not one which could be

¹⁴¹ “Genie Out of the Bottle,” *Saturday Night*, August 11, 1945, 1.

¹⁴² *Ibid.*

¹⁴³ *Ibid.*

sustained indefinitely. If the Anglo-American atomic monopoly were to be continued indefinitely, “[I]n the long run it could not fail to be ruinous to the character of both those nations,” effectively granting them a tyrannical power over all other nations. At the same time, this monopoly was not likely to last indefinitely, as “Somebody else is bound to find out soon either how to operate the same kind of atomic bomb or how to produce another one almost as good or possibly better.”¹⁴⁴ Furthermore, once multiple nations had succeeded in developing the bomb, the lack of an effective means of defence against atomic attack ensured that retaliation would be the only deterrent.¹⁴⁵ The editorial argued, however, that “punishment administered at the hands of a world community,” rather than the threat of retaliation, was the only truly effective means by which a would-be atomic aggressor would be deterred.¹⁴⁶

Maclean’s and the *Saturday Evening Post*, in their respective editorials of September 15, echoed *Saturday Night’s* plea of August 11. The *Post* editorial starkly presented the issue at stake both in its headline – “Nations Must Literally Unite or Perish” – as well as in the dramatic statement, “[T]he forces which wreaked their first dreadful ruin on Hiroshima and Nagasaki have faced every nation and every individual with the choice of world co-operation or world destruction!”¹⁴⁷ “Never in history,” the editorial lamented, “has a war ended almost simultaneously with the launching of a weapon certain to revolutionize not only the methods of warfare but probably the whole concept of politics and economics.”¹⁴⁸ Discouraging readers from making the assumption

¹⁴⁴ “Too Much Power,” *Saturday Night*, August 25, 1945, 1.

¹⁴⁵ *Ibid.*

¹⁴⁶ *Ibid.*

¹⁴⁷ “Nations Must Literally Unite or Perish,” *The Saturday Evening Post*, September 15, 1945, 120.

¹⁴⁸ *Ibid.*

that “the secret of atomic power as a weapon” could “remain permanently in the hands of the ‘good’ nations,” it urged “the democratic nations” to use “the brief interval in which [they] enjoy this advantage” to establish “genuine co-operation among peoples” so that “this appalling knowledge” could “be concentrated on the improvement of man, instead of on his destruction.”¹⁴⁹ If they were to fail in this task, the editorial concluded bluntly, the recently concluded war would “herald only a brief interlude preceding a new catastrophe to what we call our civilization.”¹⁵⁰

In its first atomic-age editorial, published the same day as the *Post* editorial, *Maclean’s* presented the same “promise or peril” dichotomy as its American counterpart. Under the title, “For Good or for Evil,” the editorial declared that, with the advent of atomic power, “the human race is now entered upon the most critical period in its history.”¹⁵¹ Looking ahead to a hypothetical future in which multiple nations possessed the bomb, the editorial argued that “much, if not all, of our cherished machinery for keeping the peace has lost its meaning... in a world in which each competing national sovereignty possesses, to use as it likes, the power to destroy all others.”¹⁵² The obvious solution, it concluded, was “[a] world authority charged with the trust of developing the new power only in the service of all mankind.”¹⁵³

This chapter will trace the shifting attitudes of the four magazines toward the prospect of establishing such an international authority, a prospect which, as this chapter

¹⁴⁹ *Ibid.*

¹⁵⁰ *Ibid.*

¹⁵¹ “For Good or for Evil,” *Maclean’s*, September 15, 1945, 1.

¹⁵² *Ibid.*

¹⁵³ *Ibid.*

demonstrates, all four fervently supported in 1945, in light of the pessimistic atomic war scenarios described in the preceding chapter.

During the final months of 1945, world government or international control of atomic energy continued to be a preoccupation for all three magazines as well as for the American magazine *Life*. While a consensus emerged early on among magazines on both sides of the Canadian-American border that some form of world government or international control of atomic energy was necessary (however vague these proposals might be), an obvious problem that soon emerged was the practical matter of how such an ambitious idea would actually be implemented. One proposal that emerged soon after Hiroshima and Nagasaki, alongside one to place atomic energy and research under the control of an international authority, was a plan for atomic research to be shared freely amongst all nations.

These ideas were explored by *Saturday Night* in a September 1945 editorial. The editorial began by contrasting the “two strongly held but apparently irreconcilable views” as to what should be done with the scientific and technical knowledge behind the bomb. On one side, there were those who proposed that the United States, and its allies Canada and the United Kingdom, sole possessors of this technical knowledge, should guard it “with the utmost care lest it fall into evil hands”; on the other, there were those who argued that the “dread secret” should be turned over to the UN Security Council or freely shared with all governments in order to prevent mutual fear and suspicion from undermining the hoped-for postwar unity among nations.¹⁵⁴ The editorial argued against

¹⁵⁴ “Sharing the Secret,” *Saturday Night*, September 15, 1945, 1.

such mutual sharing, pointing out that the basic science behind the bomb was common knowledge among the scientific community and had been freely shared in scientific journals and conferences prior to the war. “[T]he production process, not the scientific knowledge,” it concluded, was “the real secret.”¹⁵⁵ *Saturday Night* also invoked suspicion of the Soviet Union to argue against the sharing of atomic secrets. Noting that the extent to which the USSR had progressed in its own atomic bomb research remained a mystery in the West, it scolded those who would “share our secrets with the Soviets” while “they would not share their secrets with us.”¹⁵⁶

Considering these concerns, the editorial concluded, “Real security can only come through entrusting the secret to a true world authority, not sharing it so that every nation and every group, good or evil, will be able to use it for its own ends.”¹⁵⁷ *Saturday Night* expressed serious doubts, however, that the nascent United Nations could fulfill the role of this would-be world authority. To prevent an aggressor nation from developing the bomb, it would be necessary to create “the rights of absolutely free, untrammelled and intimate inspection” by the UN. The Security Council’s freedom of action, however, was hampered by the great power veto, which allowed the five permanent members of the council to “fully protect [their] sovereignty” against unwelcome inspection.¹⁵⁸ Although, in light of these facts, *Saturday Night* lamented that the UN was “already outmoded” by the existence of the atomic bomb, the editorial concluded on a note of both hope and urgency, arguing that, unless “mutual fear” proved sufficient to dissuade nations from using the atomic bomb against each other, they would need, within the next 25 years, to

¹⁵⁵ *Ibid.*

¹⁵⁶ *Ibid.*

¹⁵⁷ *Ibid.*

¹⁵⁸ *Ibid.*

“adjust [their] mentality to the sacrifice of the stubbornly maintained notion of national sovereignty” in order to “bring this power under control.”¹⁵⁹

In the United States, the practical problem of how to go about establishing a world government was also addressed by *Life* and *The Saturday Evening Post* in editorials in late October. Despite being strongly convinced of the necessity of world government, the *Post* editorial admitted “confusion” as to precisely how such a government would be constructed. The UN, it argued, “should provide the pattern.” Like *Saturday Night*, however, the *Post* concluded that the Great Power veto effectively prevented the organization from doing anything substantial to control the bomb.¹⁶⁰ A further obstacle to the formation of a world government was the existence of authoritarian regimes, particularly the Soviet Union, which tightly controlled the behaviour of their citizens. The editorial found it “impossible” to imagine a world government exercising “even limited control” over such countries.

Given this obstacle, the *Post* suggested, as an alternative, a closer union among democratic nations, expressing hope for the gradual erosion of authoritarianism in the USSR and other dictatorships that would finally permit “the degree of federation called for by the new facts of life.”¹⁶¹ It argued that sharing the technical knowledge behind the bomb with the USSR “would neither advance the coming of world government nor head off another war.” Instead, it would “facilitate the enslavement of some millions of people, and take from the hands of the free nations the most important defensive advantage they

¹⁵⁹ *Ibid.*

¹⁶⁰ “The Long, Hard Road to World Order,” *The Saturday Evening Post*, October 20, 1945, 128.

¹⁶¹ *Ibid.*

have.”¹⁶² Anticipating the coming division of a large part of the world into opposing ideological blocs, it opined, “If the world is to be split into blocs, then our bloc hasn’t anything it can afford to give away to a determined rival.”¹⁶³

An editorial in *Life*, published around the same time as the *Post* editorial, reviewed two directly contradictory proposals that had been advanced regarding the control of atomic energy: the May-Johnson bill, introduced in Congress, which would create a commission to tightly control atomic energy and research in the U.S., and international inspection schemes. Also among the proposed solutions reviewed by the editorial was the continued push for world government. “[A] group of 50 citizens,” it observed, had met the previous week at a conference in Dublin, New Hampshire, to discuss this possibility. Two competing recommendations had emerged from the conference, with a majority proposing the immediate establishment of “a real world federal government” that would have a monopoly on the use of the atomic bomb, and a minority preferring “an easier federation” between democratic nations, excluding the USSR, as the *Post* had suggested.¹⁶⁴

While the *Life* editorial did not endorse any particular course of action, it argued that these two proposals were not the only alternatives and that “preatomic means,” particularly the newborn UN, could still be used to reduce international tensions. It warned, however, that, for this to be accomplished, the U.S. needed to exhibit “a higher order of statesmanship than [it] has been showing lately.”¹⁶⁵ The editorial presented the

¹⁶² *Ibid.*

¹⁶³ *Ibid.*

¹⁶⁴ “The Bomb: A Survey of Recent Discussion Reveals the Need for Its Political Equivalent,” *Life*, October 29, 1945, 36.

¹⁶⁵ *Ibid.*

sharing of atomic knowledge in a more favourable light than did the *Post*, regarding it as preferable to continued tight security. *Life* criticized the U.S. Army for maintaining tight control over the atomic secrets that had not already been divulged in *Atomic Energy for Military Purposes*, colloquially known as the “Smyth Report,” the official report on the Manhattan Project. Referring to a statement by atomic scientists employed at the University of Chicago, published in the same issue, the editorial argued that “the continued security regulations are a burden on American science which the scientists have begun to find intolerable.”¹⁶⁶

Life also took a dim view of the May-Johnson bill, a proposed act of Congress that would create a nine-member commission charged with controlling “every jot and tittle,” in its words, of atomic energy and research in the U.S. It regarded both the bill and the Army’s secrecy as being motivated “by fear rather than imagination.”¹⁶⁷ Appealing to “the habit and spirit of free scientific inquiry which pervades the Western world” without which the atomic bomb would not have been possible, the editorial instead urged openness, arguing that “the best way to feel safe in an atomic world is for every nation to know what every other nation is doing.”¹⁶⁸ Pointing to one proposal along such lines, a proposed international agreement requiring each nation to “report regularly on all its atomic activities, perhaps to the United Nations Organization” and allowing “all scientists free access to one another,” *Life* indicated its support for such an idea, suggesting the U.S. “could well use its present diplomatic advantage to seek such an agreement.”¹⁶⁹

¹⁶⁶ *Ibid.*

¹⁶⁷ *Ibid.*

¹⁶⁸ *Ibid.*

¹⁶⁹ *Ibid.*

The editorial's opposition to atomic secrecy and support for a multilateralist solution to the problems posed by the atomic bomb was reinforced by the aforementioned opinion piece in the same issue by the executive committee of the atomic scientists of the University of Chicago, whose work on the Manhattan Project had played a crucial role in the development of the atomic bomb. This essay, authored by physicists David L. Hill and John A. Simpson Jr. and physical chemist Eugene Rabinowitch, advocated the outlawing of the atomic bomb and the establishment of effective international control over atomic energy, attempting to demonstrate, through a series of arguments, that all possible alternatives would be ineffective. They warned that it would be impossible for the United States to guard indefinitely the scientific and technical knowledge behind the bomb. Contrary to the public misconception of this knowledge as "a 'secret formula,' which a traitor can slip to a spy in a dockside tavern or a heroic scientist can swallow just before it is snatched from him by foreign villains," the "basic scientific facts" which informed the design and function of the bomb had been common knowledge among scientists since before the outbreak of the Second World War.¹⁷⁰

Furthermore, the U.S., by developing and using the bomb, had proven for other nations that it was technically feasible to do so. The American and British governments had given "only a vague idea," in their official statements to the public, of the processes used to prepare the atomic explosives, as well as how the explosives were detonated in the bomb itself. Rival nations, however, having had the feasibility of these processes

¹⁷⁰ David L. Hill, Eugene Rabinowitch, and John A. Simpson, Jr., "The Atomic Scientists Speak Up," *Life*, October 29, 1945, 45-46, 48. This argument was somewhat ironic, given that, within months, the Gouzenko espionage revelations would lead to a spate of unsubstantiated allegations in the press that the Soviets had been in search of Canadian "atomic secrets," despite the fact that Canada, in fact, had no secrets to give up. Teigrob, *Warming Up to the Cold War*, 63-66; Reg Whitaker and Gary Marcuse, *Cold War Canada: The Making of a National Insecurity State, 1945-1957* (Toronto: University of Toronto Press, 1994), 59-63.

demonstrated for them by the Americans, would be able to concentrate “their best scientific and engineering manpower” on “the process most suitable to their resources,” investing “only a fraction of the scientific manpower and industrial know-how” that had gone into the American bomb.¹⁷¹ The authors therefore anticipated that multiple nations would be able to develop the bomb within two to five years.¹⁷²

It would be impossible, the authors continued, for the U.S. to monopolize the control of uranium ores, as existing deposits were spread throughout the world and more would undoubtedly continue to be discovered, including in areas beyond the control of the U.S. and its allies.¹⁷³ Nor would it be sufficient for the U.S. merely to maintain a lead in the quantity of its atomic stockpile and its industrial capacity to manufacture more bombs, as, given the nature of the atomic bomb, two rival powers would be “in approximately equal position” if each had merely a sufficient number of bombs to destroy the other’s cities.¹⁷⁴ Additionally, in a world in which multiple major powers possessed the bomb, fear of retaliation would be insufficient to prevent first use of atomic weapons. Instead, it would instill a belief “that only by striking first can a nation prevent an aggression against itself,” leading to “fear, suspicion and almost inevitable final catastrophe.”¹⁷⁵ Finally, unlike earlier new weapons, there was no immediate prospect of a defence specifically to prevent the bomb from reaching its target. While bomb-carrying aircraft could be shot down *en route* to their targets, “a number” of rockets with atomic warheads “will always come through.”¹⁷⁶ While the “most efficient” defence against

¹⁷¹ Hill, Rabinowitch and Simpson, “The Atomic Scientists Speak Up,” 45-46.

¹⁷² *Ibid.*, 46.

¹⁷³ *Ibid.*

¹⁷⁴ *Ibid.*

¹⁷⁵ *Ibid.*

¹⁷⁶ *Ibid.*, 46, 48.

atomic attack would be to disperse industries and population centres, this would be ineffective against an enemy with a sufficiently large number of atomic bombs.¹⁷⁷

Considering these arguments, Hill, Rabinowitch and Simpson called for an international agreement to outlaw the atomic bomb, along with an international authority with the power to ensure nations were abiding by the terms of this agreement. A less strict agreement to outlaw atomic warfare while leaving atomic weapons in the hands of governments, they judged, would be insufficient. Speaking on behalf of atomic scientists employed at the University of Chicago and Oak Ridge, Tennessee, they urged Congress not to pass any legislation concerning atomic energy until a “thorough” inquiry had been conducted into all the implications of atomic energy and its potential international control.¹⁷⁸

In late 1945 and early 1946, *Maclean's* and *Saturday Night* continued to urge, in their editorials, the formation of a world government, international control of atomic energy and research, or, at a minimum, support for the newly established United Nations and other global mechanisms for keeping the peace. A *Maclean's* editorial of December 1 urged the public to maintain pressure on diplomats to make the international system work, given the likelihood that “Within a very few years every industrial nation in the world will be equipped with the atomic bomb or some variant thereof.”¹⁷⁹ *Saturday Night* supported the UN as the best candidate to step into the role of a world government, pointing to the simple fact that the UN already existed, had organizational machinery in place, and was supported by “a great number of powerful nations.” It argued furthermore

¹⁷⁷ *Ibid.*, 48.

¹⁷⁸ *Ibid.*

¹⁷⁹ “Humanity’s Last Chance,” *Maclean's*, December 1, 1945, 1.

that the UN could be amended and improved, and that its “successful operation over a period of a few years” would be sufficient to persuade member-states to increase its powers.¹⁸⁰

In its first editorial of 1946, *Maclean's* argued that all countries would need to surrender some measure of their national sovereignty to ensure the proper functioning of the UN-centred postwar order. In support of this argument, the editorial cited two prominent British politicians, Labour foreign minister Ernest Bevin and his Conservative predecessor, Anthony Eden. At the San Francisco Conference the previous spring, Eden had argued that all countries needed to “abate our present ideas of sovereignty.” Bevin, after succeeding Eden, had stated Britain’s willingness to surrender a portion of its national sovereignty in the name of international peace, and suggested the direct election of delegates to the UN General Assembly by the electorates of the organization’s member-states, making it akin to a world parliament.¹⁸¹ *Maclean's* acknowledged the obstacles impeding any move towards the abatement of national sovereignty, particularly the great power veto, and pointed out no one was more aware of them than Eden and Bevin. It nonetheless urged “all nations which favor the growth of One World” to make some gesture demonstrating their willingness to surrender part of their sovereignty. Canada, for example, could offer to internationalize the pitchblende deposits at Great Bear Lake in the Northwest Territories.¹⁸²

One month later, *Maclean's* returned to the theme of limitation of national sovereignty, citing Canada’s Liberal prime minister, William Lyon Mackenzie King, as

¹⁸⁰ “For World Government,” *Saturday Night*, December 22, 1945, 1.

¹⁸¹ “The Road to One World,” *Maclean's*, January 1, 1946, 2.

¹⁸² *Ibid.*

stating that “some form of world government” was “the only visible solution to the problems of the atomic age.”¹⁸³ The *Maclean's* editorial praised the prime minister’s “firm repudiation of a narrow nationalism” as a “welcome guarantee of Canada’s present acceptance of world responsibilities” after the country’s “inconstant” support for the League of Nations in the 1920s and 1930s.¹⁸⁴ Furthermore, *Maclean's* argued, Canada’s own historic experience in the partial limitation of national sovereignty served as an example to other nations that, while limited sovereignty could be “exasperating, even humiliating,” it was nonetheless “feasible.”¹⁸⁵

Saturday Night also cited remarks by King in its December 1945 editorial in support of world government. The prime minister, describing the UN as “an indispensable medium” through which the peoples of the world could “work out new institutions” to ensure global peace, had expressed his hope that nation-states would “not delay unduly” in surrendering a portion of their national sovereignty to such a global authority.¹⁸⁶ Arguing that the UN already required a “substantial” surrender of national sovereignty by its members, *Saturday Night* predicted optimistically that, the longer its structure remained in effect and was lived up to, the easier it would become to gradually convert a partial surrender of sovereignty into an “irrevocable” surrender. Once this had been voluntarily accepted by a majority of states, it could be imposed upon the recalcitrant minority.¹⁸⁷ The editorial concluded by expressing the opinion that working out the nature and structure of the eventual world government was “the most difficult

¹⁸³ “The Voice of Experience,” *Maclean's*, February 1, 1946, 2.

¹⁸⁴ *Ibid.*

¹⁸⁵ *Ibid.*

¹⁸⁶ “Mr. King’s Position,” *Saturday Night*, December 22, 1945, 1.

¹⁸⁷ *Ibid.*

part” of the process of setting it up. It warned, however, that a prospective world government would be unable to function effectively unless it had the confidence of “a very large part” of the world’s population.¹⁸⁸

By early 1946, then, the four magazines had fully embraced the idea of a partial compromise of national sovereignty in the name of containing the clear and present danger the atomic bomb was seen to pose to civilization. This belief in the necessity of international control of atomic energy as the only real solution to the threat of the bomb, spurred on by the activism of the very scientists who had developed it, was expressed with seemingly equal fervour by the Canadian and American magazines. *Saturday Night* and the *Saturday Evening Post*, however, in identifying the Soviet Union’s authoritarian political system as an obstacle to hopes of international control, showed early signs of what would become all four magazines’ principal line of argument concerning the likelihood of achieving such a control scheme, as efforts in this direction ran squarely up against the emerging geopolitical reality of the Cold War.

“*How Much Can You Inspect*”: *Criticism of American and Soviet Secrecy, 1947-1948*

The Saturday Evening Post, which had expressed skepticism regarding the sharing of atomic secrets with the USSR as early as 1945, restated its opposition in an editorial in early 1947 which also highlighted the issues involved in any scheme for international inspection, particularly the Soviet obsession with secrecy. Referring to recent news reports about a new Soviet railway line being constructed across Siberia, which had

¹⁸⁸ *Ibid.*

previously been kept top-secret despite “at least 2,000,000 German and Japanese war prisoners” being involved in the construction, and despite the best efforts of foreign diplomats to find information about it, the *Post* asked rhetorically “what international inspectors could find out in a country” where such a massive project was able to remain shrouded in secrecy?¹⁸⁹

The *Post* insisted that it wanted “good will towards Russia” and “would welcome whatever signs exist” that the USSR was willing to make concessions to the West to obtain such good will. The editorial urged readers, however, to consider the extraordinary power that the Soviet regime held over its individual citizens and the instruments of coercion it could employ to prevent the divulging of information related to its atomic research. These conditions, it stressed, would need to change before American atomic secrets could be shared with the USSR.¹⁹⁰

While the *Post* viewed the “Iron Curtain” of Soviet official secrecy as the premier obstacle to an unfettered system of international control, free inspection, and mutual openness in the area of atomic research, a September 1947 *Maclean’s* feature article by Ottawa editor Blair Fraser examined a different obstacle, the “western Iron Curtain” of American official secrecy. Fraser began with the story of an American physicist who had been hired to head McMaster University’s physics department in 1946 but had still not come to Canada to take up his post for fear of being charged with divulging classified atomic information under the U.S. Atomic Energy Act. Canadian medical schools, meanwhile, were unable to obtain radioactive isotopes for medical research from U.S.

¹⁸⁹ “How Much Can You Inspect Through an Iron Curtain?,” *The Saturday Evening Post*, January 25, 1947, 124.

¹⁹⁰ *Ibid.*

atomic piles. While the U.S. Atomic Energy Commission insisted that “machinery” to distribute such materials was in the process of being set up, outside observers had not been able to observe much progress on this front.¹⁹¹

Although Canadians habitually thought of the Western nations as being the collective owners of the atomic bomb secret, Fraser emphasized that “[t]his is no longer correct.” Despite their contributions to the wartime Manhattan Project, neither Canada nor the United Kingdom were privy to any classified American atomic research.¹⁹² This was not significantly problematic for Canada, whose experimental atomic plant at Chalk River, Ontario, was “far enough advanced to be outside the scope of previous American experience.” It caused much difficulty, however, for the British, who, in building a plutonium plant on the American model, continually encountered costly technological problems that the Americans had already solved but for which they refused to lend technical assistance to the British.¹⁹³

American atomic secrecy, Fraser wrote, extended even to the U.S. government’s civilian Atomic Energy Commission, which was under strict supervision by both the U.S. military and the Senate’s atomic energy committee. It also extended to employees at the atomic plants at Oak Ridge, Tennessee, and Hanford, Washington, who, according to rumours, risked losing their jobs if undercover FBI agents caught them saying too much.¹⁹⁴ The result of this official secrecy, Fraser explained, was that atomic research, which had been freely shared among scientists of all countries prior to the war, was no

¹⁹¹ Blair Fraser, “Uncle Sam’s Iron Curtain,” *Maclean’s*, September 1, 1947, 7-8, 62, 65-66.

¹⁹² *Ibid.*, 7-8.

¹⁹³ *Ibid.*, 8.

¹⁹⁴ *Ibid.*, 8, 62.

longer being freely shared, and would not be until effective international control of atomic energy had been established.¹⁹⁵ One scientist who spoke to Fraser off the record expressed his concern that young men would not want to become nuclear physicists “for fear of spending [their lives] at the dictation of some commission or other.”¹⁹⁶

Fraser interviewed scientists and Department of External Affairs personnel familiar with atomic energy for his story. Despite being concerned enough about security to oppose complete freedom of communication on atomic energy, he wrote, they nonetheless advocated the declassification of “a fairly wide area of information” that remained classified by the U.S. government. In particular, they supported the immediate release of radioactive isotopes intended for medical and scientific research. This, they claimed, would give clearance to “99% of the research jobs of immediate benefit to humanity.”¹⁹⁷ Some Canadian scientists also favoured distributing fissile material – uranium-235 and plutonium – in minute quantities, well below critical mass, for purposes of laboratory study; others objected even to this, arguing that the study of even such small amounts could provide scientists with information that would aid the construction of a bomb.¹⁹⁸

In addition to its cost in terms of medical and scientific research, scientists also told Fraser that American atomic secrecy was costly to the future development of atomic power in industry. While no scientists doubted that atomic power plants would eventually be possible “if people have a chance to work on them,” a major security obstacle was

¹⁹⁵ *Ibid.*, 62.

¹⁹⁶ *Ibid.*

¹⁹⁷ *Ibid.*

¹⁹⁸ *Ibid.*, 65.

presented by the fact that the fissile material used as fuel for such plants was also the explosive material in the atomic bomb. Any nation building an atomic power grid would also potentially be laying the foundations for “the greatest armament industry ever known.”¹⁹⁹

Considering these facts, Fraser continued, atomic scientists favoured maintaining secrecy surrounding “dangerous” information until international control was in place. As for what this would look like, Fraser noted that the UN Atomic Energy Commission (UNAEC), of which Canada was a member, had been attempting to devise a workable plan for over a year. The commission’s upcoming second report was expected to recommend that the international control agency have control over all uranium ores as soon as they had been mined and that uranium mining be subject to strict quotas. The amount of ore and processed fissile material stored within any nation would be strictly limited. Fissile material would be the property of the agency, and only “nondangerous” amounts well below critical mass would be leased to governments and private groups for research purposes. The agency would, furthermore, own and operate atomic plants such as those at Chalk River, Oak Ridge and Hanford. It would also have full inspection rights at mines and ore mills owned by governments. Atomic weapons research by governments would be strictly forbidden. The agency would have power to conduct aerial and ground surveys “without hindrance” within the territory of each nation to verify that no illicit research was being conducted. These, Fraser explained, were the “absolutely minimum”

¹⁹⁹ *Ibid.*

conditions under which the U.S. would feel safe to declassify any of its “dangerous” atomic research.²⁰⁰

The USSR’s ongoing opposition to these requirements made rational sense, Fraser argued, given that they conflicted strongly with the Soviet policy of severely limiting penetration of its territory and airspace by foreigners. There was additionally no guarantee that even Western governments would accept these requirements, given the challenge that they represented to traditional notions of national sovereignty. Fraser anticipated that the Canadian Parliament, and especially the U.S. Congress, would likely balk at any international-control scheme if the full implications were made explicit to them.²⁰¹ While diplomats working toward international control had concluded that the obstacles obstructing progress on this front were the same obstacles, “each and all of them,” that prevented the elimination of war itself, and many had been discouraged by this fact, they continued to work towards this goal, knowing the only alternative appeared to be eventual atomic war.²⁰²

Fraser concluded the article with an outline of what he believed to be the three key tenets of Canadian atomic policy, “as far as it can be discerned.” Firstly, and most importantly, Canada sought to have the U.S. loosen “unnecessary” restrictions, particularly those on radioactive isotopes. At the same time, it aimed to work “patiently and firmly” for international control. Fraser reported that General Andrew McNaughton, head of the Canadian delegation in the international-control negotiations, remained optimistic that, if the Western states could devise an effective control scheme and

²⁰⁰ *Ibid.*

²⁰¹ *Ibid.*, 65-66.

²⁰² *Ibid.*, 66.

persuade their own governments and publics to accept it, the Soviet bloc would eventually join as well.²⁰³ In the meantime, Canada sought to maintain secrecy surrounding all areas of research on “dangerous” amounts of fissile material unless and until international control had been implemented; failing this, the only realistic option was to maintain as large a scientific lead as possible over the Soviets.²⁰⁴

In October 1948, more than a year after Fraser’s article appeared in *Maclean’s*, McNaughton himself wrote an opinion piece for *Saturday Night* blaming the USSR for the protracted stalemate in the international-control negotiations. McNaughton began by arguing that international control was the issue of “greatest long-term significance” before the UN. Unfortunately, UNAEC’s most recent report stated that the international-control negotiations had reached an “impasse” over the USSR’s continued opposition to the proposals of the “democratic nations.” McNaughton expressed his concern that “the world may drift into atomic war” if this impasse were not resolved.²⁰⁵

McNaughton summarized for readers the major points of the current plan endorsed by nine of the eleven current UNAEC member-states, not including the USSR and the Ukrainian SSR, the details of which were largely the same as the plan described by Fraser the previous year. An International Atomic Energy Authority (IAEA) would take possession of uranium and thorium ores as soon as they had been mined and would regulate the mining of these ores. Production of fissile material would be “strictly” related to consumption so that no government could accumulate a large enough stock to

²⁰³ *Ibid.*

²⁰⁴ *Ibid.*

²⁰⁵ A.G.L. McNaughton, “Russia Wants Atom Treaties but Not Real Control,” *Saturday Night*, October 16, 1948, 7.

“cause anxiety.” The IAEA would “own, operate and manage” all facilities handling dangerous amounts of fissile material, and would inspect and issue licenses for all facilities handling non-dangerous amounts. Once this system had been gradually set up, the manufacture of atomic bombs would be banned, all existing bombs would be dismantled, the fissile material from these bombs would be converted to peaceful uses, and all available atomic research would be turned over to the IAEA.²⁰⁶

McNaughton opposed a rival Soviet plan, which “differ[ed] fundamentally” from the plan endorsed by the Western nations on UNAEC. The USSR had proposed the immediate outlawing of the atomic bomb and the destruction of all existing stocks of atomic bombs within a three-month period as a “first step” towards international control but had refused to commit to any “second steps.” McNaughton argued that the idea that the threat to global peace represented by the atomic bomb could be solved simply by the signing of a treaty banning the bomb was “very unreal” in light of all that had transpired in the first half of the twentieth century. Since the U.S. was currently the only country armed with atomic bombs, its accession to such a treaty would effectively be an act of “unilateral disarmament.” Absent a system of international inspection and control, there was no guarantee that any other country working on atomic activities would not make or use the bomb, nor that fissile material would not be diverted from peaceful to military uses.²⁰⁷ The majority of UNAEC member-states had rejected the Soviet proposal as “completely ignoring the existing technical knowledge of the problem” and concluded that their own plan was the only one which would meet the problems at hand.²⁰⁸

²⁰⁶ *Ibid.*

²⁰⁷ *Ibid.*

²⁰⁸ *Ibid.*

By 1949, therefore, the *Saturday Evening Post*, *Maclean's*, and *Saturday Night* continued to express hope for the establishment of international control of atomic energy, despite the repeated stalemate of the UNAEC negotiations toward this objective. In light of the emerging geopolitical reality of the Cold War, however, such support now appeared to be little more than rhetoric, as the Soviet Union and the Western powers steadfastly refused to accept each others' proposals. All three magazines, displaying a growing Cold War partisanship, indicated their support for the American plan for international control, blaming the USSR for the incompatibility of its political system with this plan, and not considering alternative narratives, such as the possibility that the U.S. proposal was made in bad faith and never intended to be accepted by the USSR. Simultaneously, however, *Maclean's* displayed its own fair-mindedness and skepticism toward at least some of this increasing Cold War partisanship through its critique of American atomic secrecy, which, while acknowledged as necessary unless and until international control was achieved, was seen as both irrational in its extent and harmful to the nonmilitary atomic research of Canada and other U.S. allies. As the concluding section of this chapter will demonstrate, though, this criticism of excessive secrecy was not limited to *Maclean's*, but was echoed by *Life*, which maintained its liberal-democratic ideological commitments in spite of its growing anti-Soviet stance.

"No Excuse Now": Atomic Secrecy and International Control in the Shadow of the Soviet Atomic Bomb, Fall 1949-Winter 1950

Following President Harry S. Truman's September 1949 announcement that the USSR had successfully tested an atomic bomb in August, commentary on the event in *Life* and *Maclean's* indicated that it had not altered the basic facts of the situation. An

October 1949 *Life* editorial pointed out that the successful Soviet atomic-bomb test had not ended the still-ongoing international-control negotiations at Lake Success, New York. Repeating the familiar argument that “the choice before the world is atomic control or atomic warfare,” *Life* analyzed the chances of achieving international control by looking back upon the progress of the negotiations since 1946.

Echoing Fraser’s *Maclean*’s article of two years earlier and McNaughton’s *Saturday Night* opinion piece of one year earlier, the editorial argued that the progress of the negotiations revealed a “radical difference” between the American and Soviet positions on international control. American plans for international control, beginning with the 1946 Baruch Plan, had envisioned an international authority with power to “own or control all the steps in atomic fission” necessary to ensure its peaceful use, free access to all facilities, and power to punish any nation that flouted these rules.²⁰⁹ The Soviets, correctly objecting that these plans would violate their sovereignty, had put forward rival plans envisioning a voluntary commitment by each individual nation not to use fissile materials in their possession for warlike means. The international authority, under the Soviet plan, would not own fissile material, which would remain in the hands of governments, would have only limited powers of inspection, and would have its power to impose sanctions checked by the veto power of the five permanent members of the Security Council.²¹⁰

Life also noted that the negotiations had revealed a lack of trust between the two sides. The U.S. had wanted to maintain its atomic arsenal, and control of its atomic

²⁰⁹ “Atomic Control,” *Life*, October 10, 1949, 38.

²¹⁰ *Ibid.*

facilities, until international control was securely in place, turning these over to the international authority only once a control system had been achieved. The USSR, opposing this plan, had demanded that the U.S. destroy its bombs and dismantle its plants as soon as an international-control agreement was signed. The U.S., in turn, opposed this plan as an act of “one-way disarmament” with no guarantee the Soviets would reciprocate.²¹¹ Echoing earlier claims by the *Saturday Evening Post*, by Fraser in *Maclean’s*, and by McNaughton in *Saturday Night*, the *Life* editorial argued that Soviet possession of the bomb did not change the fact that the USSR’s “closed society” was the basic problem impeding international control. An effective control system could be implemented only if the Soviets “fundamentally change their system.”²¹² If the USSR failed to do this, *Life* concluded, the U.S. would have nothing to gain by accepting the Soviet plan. Since stockpiles of fissile material for industrial materials could be converted for use in a bomb, “any atomic facility is potentially a weapons facility,” a fact the Soviet plan “evaded.”²¹³

Maclean’s used the USSR’s development of the atomic bomb to reiterate its critique of American atomic secrecy. A November editorial noted that, until September 1949, the “standard excuse” for official secrecy surrounding atomic energy had been that the Soviets might learn the secret of the atomic bomb. What, then, did the development of the bomb by the USSR mean for this policy of secrecy?²¹⁴ *Maclean’s* acknowledged the argument that this secrecy should be “left unchanged, or even intensified,” so that the U.S. could maintain its existing advantages over the USSR in the production of atomic

²¹¹ *Ibid.*

²¹² *Ibid.*

²¹³ *Ibid.*

²¹⁴ “There’s No Excuse Now for Atomic Hush-Hush,” *Maclean’s*, November 1, 1949, 2.

bombs. It rejected this argument, however, contending that, if both superpowers possessed the ability to strike each other with atomic bombs, there was “small comfort” in the numerical superiority of American bombs.²¹⁵

The *Maclean*'s editorial repeated the familiar argument that, while international control was “the only way to save the world from disaster,” mutual distrust between East and West rendered this impossible.²¹⁶ If control of atomic energy was ever to become a reality, it was essential to dispel the “atmosphere of dark conspiracy” surrounding it. All the advances in atomic research that had been made under the cloak of military secrecy had, as far as could be observed, merely served to increase the destructive power of atomic weapons. Any progress that might have been made on harnessing atomic energy for constructive ends “has not been revealed.”²¹⁷ Arguing that “Now is the time to change all this,” the editorial urged that nuclear physics be treated “like any other branch of science” and that security be completely relaxed on “areas of research which bear only indirectly on the making of bombs.” “Western civilization is headed for suicide,” it concluded, unless it adopted “a new kind of thinking about the whole problem” of atomic energy and abandoned “the morbid fear which, up to now, has dominated our thinking.”²¹⁸

A February 1950 article in *Life* paralleled *Maclean*'s criticism of American nuclear secrecy. The article pointed out that the approximate number of American atomic bombs could be estimated with a high degree of confidence based on “published and

²¹⁵ *Ibid.*

²¹⁶ *Ibid.*

²¹⁷ *Ibid.*

²¹⁸ *Ibid.*

unclassified” information and was therefore “no secret.” However, this information, “so vitally necessary to the making of policy,” remained officially hidden from ordinary American citizens, who were supposed to be “finally responsible for determining what policy shall be.”²¹⁹ *Life* stressed that there was “no possible justification for this kind of overextended secrecy.” In support of its case, it cited David Lilienthal, former chairman of the U.S. Atomic Energy Commission (AEC), who had publicly denounced the “growing tendency ... to act as if atomic energy were none of the people’s business” as being “dangerous to cherished American institutions and for that reason dangerous to genuine national security.”²²⁰ Arguing that “The restriction of public knowledge Lilienthal feared is being brought about,” the article claimed that the “all-encompassing security” surrounding atomic science was “so stifling” that “conscientious publications” were wary of publicly presenting conclusions drawn from “available, non-secret literature.” It concluded by calling on the U.S. government to relax this excessive security “now, before it is too late.”²²¹

By 1950, therefore, editorial attitudes toward international, and U.S. government, control of atomic energy displayed two sides, neither of which was affected by the USSR’s development of the bomb. On the one hand, *Life*, true to its emerging reputation as a Cold Warrior, supported continued U.S. control of the American nuclear arsenal and atomic research, facilities, and resources unless and until international control was securely in place, placing the onus for the failure to achieve this control scheme squarely on the USSR. On the other hand, *Life* and *Maclean’s* both continued to demonstrate the

²¹⁹ “Is Bomb None of the People’s Business?,” *Life*, February 27, 1950, 100.

²²⁰ *Ibid.*

²²¹ *Ibid.*

ideological limits of their support for U.S. control of the atomic bomb by harshly criticizing the curtain that the U.S. Atomic Energy Act had thrown up between the American public and their government's nuclear policy. As the closing chapter of this thesis will show, the growing pessimism toward the likelihood of achieving international control was paralleled by the decline of early postwar utopian beliefs regarding the nonmilitary use of atomic energy.

Chapter 3: “We Stand at the Gateway to a New World”: Forecasts of the Peaceful Use of Atomic Energy

“There Is Almost No Limit to the Possible Results”: *Atomic Utopianism, 1945*

Alongside anxiety over the potential of a future cataclysmic atomic war and urgent appeals for international control of atomic power to prevent such an outcome, coverage of the early atomic age in *Maclean’s*, *Saturday Night*, and the *Saturday Evening Post* also attempted to convey the positive implications of the discovery of atomic power, as contributors to these publications speculated on the potential impact of atomic energy upon industry and technology.

In *Maclean’s* and *Saturday Night*, breathless speculations on the positive potential of atomic energy appeared as early as September and October 1945. The pro-atomic energy articles in both magazines were written by prominent American journalists. John J. O’Neill, science editor of the *New York Herald-Tribune*, wrote on atomic energy in *Saturday Night* in September 1945, while *New Republic* editor Bruce Bliven produced an article for *Maclean’s* in October.

O’Neill forecast that atomic energy would effectively solve humanity’s energy demands and greatly reduce or eliminate the need for physical labour. He based his arguments upon the premise that “All the freedoms and comforts which man enjoys can be reduced to the forms of energy available to him with which to work out his ideas.”²²² The harnessing of the energy contained in coal and oil had exponentially increased the amount of energy available to humanity to carry out useful tasks, reducing humans’

²²² John J. O’Neill, “Will Atoms Make Power Soon Virtually Free?,” *Saturday Night*, September 8, 1945, 9.

dependence upon their own physical labour power, freeing up leisure time, and increasing the amount of goods, both necessities and luxuries, available to the average person by 1945.²²³

Atomic energy, O'Neill predicted, would bring about a further revolution in the amount of energy available to humanity. On the basis that "Uranium gives off 3,000,000 times as much energy as an equal weight of coal" (though it would "not be 3,000,000 times as cheap because of processing expenses"), he calculated that, even with "one tenth of 1 per cent of this output," uranium would be at least one thousand times as cheap as coal.²²⁴ O'Neill breathlessly listed the possibilities resulting from this abundant, cheap energy: industrial production would be massively increased; atomic energy would be converted into electricity to heat houses; automobiles would be powered by steam heated by atomic power units, eliminating the need to refuel (but not the technical problem of "shut[ting] off from passengers the tremendously powerful radiation"); and steamships, locomotives and large airplanes would soon be powered by atomic energy.

As dramatic as these predictions were, perhaps O'Neill's most dramatic (and, in hindsight, most overly optimistic) prediction was that atomic energy would effectively replace the fossil fuel industry. "In a relatively short time," he wrote, "we will cease to mine coal... The coal industry will disappear but the oil industry will remain, not as a fuel producer but as a producer of chemical products such as synthetic rubber [and] plastics."²²⁵ He prophesied furthermore that oil would no longer be a strategic prize in

²²³ *Ibid.*

²²⁴ *Ibid.*

²²⁵ *Ibid.*

military conflicts.²²⁶ The only possible downside that O'Neill acknowledged was that abundant atomic energy would create "tremendous unemployment" through the elimination of labouring jobs, though this was tempered by his prediction that the government would "tackle tremendous national projects" in order to provide an outlet for the oversupply of labour.²²⁷

Bruce Bliven, in an essay contributed to *Maclean's* October 1945 special issue on "the atomic age," matched O'Neill's optimistic tone regarding the potential of atomic energy. "It is obvious," Bliven wrote, "that by unleashing the tremendous power locked within the atom, man has taken an enormous forward stride toward conquering the universe." While he acknowledged that "the scientists who worked on the bomb are cautious in their statements," and that atomic energy "would never come into widespread use unless and until it cost [sic] less than coal, petroleum or hydroelectricity," Bliven assured his readers that "the consensus is that atomic energy for many sorts of useful purposes is not more than 10 or 20 years away at most." If it could be successfully harnessed for such purposes, "there is almost no limit to the possible results."²²⁸

Like O'Neill, Bliven presented a glowing picture of the possibilities should science be able fully to harness the atomic energy contained in all basic substances, rather than the "one tenth of one per cent" utilized in the Hiroshima and Nagasaki bombs. The atomic energy contained in a pound of coal, if it could somehow be exploited, would be a billion times greater than the energy generated by burning the same amount of coal, while a train or passenger liner could theoretically run for thousands of miles by capturing one

²²⁶ *Ibid.*

²²⁷ *Ibid.*

²²⁸ Bruce Bliven, "Atomic Dawn – What's It Mean?," *Maclean's*, October 1, 1945, 6, 60, 62.

hundred per cent of the atomic energy contained in a railroad ticket or a glass of water. Bliven also agreed with O'Neill's claims about the potential for automobiles to be powered by an atomic power unit "the size of a brick sealed up at the factory and guaranteed to keep going far longer than the possible life of the car," as well as for a future of jet aircraft powered by some form of controlled atomic explosion and steam engines driven by an atomic chain reaction heating water into steam.²²⁹

While Bliven briefly discussed these far-reaching possibilities, he devoted the majority of his article to what he regarded as three likely concrete advantages of atomic power. First and foremost among these, in his opinion, was the application of radioactive by-products in medical research. He noted that many artificially irradiated substances, when consumed by a human being, "act just as they would if they were not radioactive," for example, travelling to the same parts of the body. Bliven emphasized the possibility of radioactive tracers being used by medical researchers to study the behaviour and pathways of substances within the body, such as using radioactive calcium or strontium to measure calcium deposits in bones and teeth. Furthermore, such irradiated substances could potentially be used not only in tracing but also in treatment, for example against cancer, as radium already was.²³⁰

The second concrete possibility Bliven envisioned was that one substance could be converted into another by bombarding the atomic nucleus with sub-atomic particles, fulfilling the age-old dreams of alchemists. If this could be achieved, then less valuable substances could be converted into more valuable ones, such as gold, raising the

²²⁹ *Ibid.*, 60.

²³⁰ *Ibid.*, 60, 62.

possibility that a substitute for gold might need to be found as the standard of currency. Scientists would likewise be able to “work out on paper the qualities that are desired in a material for any given purpose – tensile strength, brittleness, electric conductivity or what not” and manufacture such materials through manipulation of the atomic nucleus.²³¹

Finally, as O’Neill did, Bliven foresaw that atomic power generation would vastly reduce the demand for human physical labour. Manual labour continued to be used throughout the world even where modern labour-saving devices were available, simply because it was cheaper. Bliven now expressed the hope that fully harnessed atomic energy would be so cheap that it would be more cost-effective than manual labour, reducing the amount of time required to carry out tasks as well as working hours. “The 40-hour work week,” he concluded, “may seem as outrageously long to us as does the 72-hour week which was normal in the steel industry until a quarter century ago.”²³²

“Far More Important Implications”: From Atomic Power to Isotopes, 1946-1950

By the spring of 1946, the ambitious claims regarding the possibilities of atomic energy that had been promoted by journalists like O’Neill and Bliven were beginning to be tempered by more measured accounts that played down some of these possibilities while continuing to express optimism regarding others. That spring, *The Saturday Evening Post* published an essay in this regard by science journalist William L. Laurence of the *New York Times*, while *Maclean’s* published a similar essay by University of Chicago physicist Leonard I. Katzin.

²³¹ *Ibid.*, 62.

²³² *Ibid.*

Laurence's essay represented a curious mixture of caution and boundless optimism. It began by referring to the age-old dream of alchemists to develop two mystical substances: the "philosopher's stone," which could create great wealth by transmuting base metals into gold, and the "elixir of life," which would grant eternal youth to whomever drank it. These old quests, he wrote, "are basically expressions of man's rebellion against the limitations of space and time." The philosopher's stone represented the desire to achieve mastery over the physical world, which had motivated all technological development, while the elixir of life represented the desire to overcome the biological facts of aging and death.²³³ The harnessing of atomic energy for peaceful purposes, Laurence claimed grandly, "brings within sight the realization of the dream of the ages."²³⁴

Before elaborating on this claim, however, Laurence sought to dispel some of the more outlandish claims regarding the possibilities of atomic energy. He dismissed the prediction that automobiles could be powered by an atomic "power pill." An atomic chain reaction would not take place in a mass of uranium-235 or plutonium below "critical mass," which, for the atomic bomb, was between one kilogram and one hundred kilograms (the precise amount being classified). Furthermore, a moderator weighing "many times" the U-235 or plutonium would be required to slow the escaping neutrons to achieve a controlled chain reaction. "[T]wo to three feet of steel or several times that amount of concrete" would also be required to shield human beings against the lethal radiation produced by such a reaction. This meant that an atomic-power unit would be so

²³³ William L. Laurence, "Is Atomic Energy the Key to Our Dreams?," *The Saturday Evening Post*, April 13, 1946, 9-10, 36-37, 39, 41.

²³⁴ *Ibid.*

massive as to make installation in an automobile or aircraft “definitely impossible.”²³⁵

These drawbacks, along with the security risk of placing quantities of U-235 or plutonium “indiscriminately” in the hands of individual citizens, made small atomic power units impractical not only for cars and aircraft but also for farms and locomotives. Atomic power units would be technically feasible for some ships, such as battleships and submarines, removing the need to return to base to refuel. They would, however, be uneconomic since ships would still need to return to base for supplies.²³⁶

Laurence also expressed doubt regarding the possibility of harnessing atomic power to generate heat and electricity. While existing atomic piles generated “tremendous amounts” of heat, they could not produce a sufficiently high temperature to convert into a form of energy that would do useful work. It would take years to design, build, and bring online atomic-power plants which operated along such principles, “requiring the solution of problems much more difficult than those involved in building our atomic piles for low-temperature operation.”²³⁷ It was unlikely, however, that such plants would be developed, as no real economic incentive existed to use U-235 or plutonium as fuel instead of coal, petroleum, or natural gas. Even if uranium or plutonium could compete with fossil fuels, it would not result in appreciable savings, as fuel cost accounted for only 3 to 17 per cent of total energy costs.²³⁸ The supply of uranium, in any case, was limited; Laurence estimated the U.S. would exhaust its supply in less than a century, even if it had access to all the uranium ores on Earth.²³⁹ He anticipated that, rather than deplete precious uranium

²³⁵ *Ibid.*, 10.

²³⁶ *Ibid.*

²³⁷ *Ibid.*, 10, 37.

²³⁸ *Ibid.*, 36-37.

²³⁹ *Ibid.*, 37.

reserves, coal, oil, and hydroelectricity would continue to supply U.S. energy needs “for years to come,” with atomic power merely acting as a supplementary energy source in cases where it was more practical, for example in locations where other power sources were not readily available.²⁴⁰

Having cast such strong doubts upon the possibility of atomic energy as a fuel source, at least in the near term, Laurence then returned to the glowing optimism with which he had begun the article, focusing on what he viewed as the “far more important implications” of the new technology for the fields of medicine and medical science. Like Bliven, he expressed great hope regarding the possibilities inherent in radioactive isotopes of lighter elements created as a by-product of the process used to convert uranium into plutonium. The “practically limitless supply of neutrons” that was produced in the atomic pile could be used to create artificially radioactive isotopes of elements that played a role in biological processes – the “philosopher’s stone” about which he had written at the beginning of the article. These radioactive isotopes could be used as “far more effective” treatments for cancer than existing treatments such as radium. Radioactive isotopes of elements such as iodine or phosphorus would travel to the same locations in the body as their nonradioactive forms, effectively treating thyroid cancer (in the case of iodine) and leukemia (in the case of phosphorus).²⁴¹

Laurence was most excited by the possibility of using “tagged atoms” – artificially radioactive isotopes of hydrogen, carbon, nitrogen, and oxygen, the “four basic elements” of organic compounds – to trace the movement of these elements and compounds

²⁴⁰ *Ibid.*

²⁴¹ *Ibid.*, 37, 39.

throughout the body and reveal the precise role they played in its metabolic processes. In particular, he believed, the use of such “tagged atoms” would reveal how the metabolism of diseases such as cancer differed from that of healthy cell tissue, potentially facilitating the treatment of such diseases. Their use would also reveal the role changing metabolic processes played in the aging process, opening up the possibility of treatments to delay this process.²⁴²

Two final possibilities presented themselves to Laurence. The use of a radioactive isotope of carbon to understand the process of photosynthesis, by which plants used sunlight to catalyze nutrients, might allow scientists to duplicate the process in order to provide abundant food for the world’s population, and also to harness solar energy as a power source.²⁴³ Furthermore, a rocket or spacecraft which could somehow utilize atomic energy for propulsion would have enough propulsive power to escape Earth’s gravitational field, enabling manned space exploration. Laurence cautioned that an engine had not yet been developed which harnessed atomic energy in this way, but he cited unnamed scientists as stating that the “formidable obstacles” involved in developing such an atomic rocket engine were “not ... basically insurmountable.”²⁴⁴ Intimating that these were but a few of the possible peaceful uses of atomic fission, Laurence concluded confidently, “We stand at the gateway to a new world.”²⁴⁵

Laurence’s ambivalence regarding the future of atomic power was paralleled by a May 1946 essay in *Macleans* by University of Chicago physicist Leonard I. Katzin, a

²⁴² *Ibid.*, 39.

²⁴³ *Ibid.*

²⁴⁴ *Ibid.*

²⁴⁵ *Ibid.*

veteran of the Manhattan Project. He denounced the atomic-power predictions advanced by commentators such as Bliven and O'Neill as "the greatest outburst of rosy-hued and fantastic dreaming since Marco Polo returned with his fabulous tales of far Cathay." Katzin thus firmly rejected the possibility that automobiles, railway locomotives and aircraft could be driven by atomic-power units, or that of all humanity's energy demands could be supplied by atomic-power generation at such a low cost as to be virtually free. A realistic atomic engine for a car, aircraft or locomotive, he explained, would be impossibly large and heavy, due to the technical requirements.²⁴⁶ Explaining that "a certain minimum quantity" of radioactive uranium-235 was required to start a nuclear-fission chain reaction, Katzin estimated that an atomic-power unit would require at least 10 tons of natural uranium, containing 140 pounds of U-235. Roughly ten tons of graphite would also be required as a moderator, in addition to a cooling system and steel or concrete to shield human beings from radiation. While it would be feasible for a large ocean-going ship, the small fraction of operating costs represented by fuel meant that the only real economic advantage would be in the saving of space for cargo instead of coal or fuel oil.²⁴⁷

As for atomic-power generation supplying energy needs, Katzin argued, because of the amount of energy produced by nuclear fission of uranium – approximately 11.4 million kilowatt-hours from a single pound – a single plant would be "highly uneconomic" for powering a single farm due to the amount of excess energy it would generate. It would, however, be sufficient to supply the energy needs of "a medium-size

²⁴⁶ Leonard I. Katzin, "Will Atomic Energy Fuel the Future?," *Maclean's*, May 15, 1946, 19, 47, 50-51.

²⁴⁷ *Ibid.*, 19, 47.

city.”²⁴⁸ Comparing the cost and energy output of uranium to that of coal, petroleum and natural gas, he anticipated that uranium would be able to compete economically with fossil fuels, but cautioned that, because the cost of power generation represented only a fraction of the overall cost of electricity to the consumer, consumer electricity bills would not be significantly reduced.²⁴⁹

Contrary to widely held belief, Katzin explained, atomic energy was not “some entirely new form of wonder energy,” but instead, “a revolutionarily new method of producing an old form of energy – heat.” There were many useful purposes for which the heat produced by the atomic pile could be harnessed, he explained; in particular, he predicted the city of the future would have central heating plants from which steam, heated by uranium fission, would be piped into every home, “banishing the basement furnace forever.”²⁵⁰ All that would be needed in order to achieve this would be a modification in the design of currently existing atomic piles, along with the modification of currently existing machinery to harness atomic power instead of coal or oil.²⁵¹ While there would be no significant difference in the quality of the heat or electricity supplied by atomic power as compared to fossil fuels, or, as previously stated, in their cost, there would be a noticeable improvement in air quality as a consequence of the reduction in the amount of coal being burned. Additionally, the savings in transportation costs with less coal needing to be shipped to urban power plants in cities in colder climates would be “tremendous.” This transportation would, furthermore, be freed up for other purposes,

²⁴⁸ *Ibid.*, 19.

²⁴⁹ *Ibid.*, 47, 50.

²⁵⁰ *Ibid.*, 50.

²⁵¹ *Ibid.*

and the fossil fuels that no longer needed to be burned would instead become a source of plastics and other synthetic chemicals.²⁵²

One final advantage of atomic energy that Katzin identified was that an atomic-power plant could theoretically be constructed almost anywhere it was needed to supply power, not needing to be located near running water like a hydroelectric power plant or to be constantly resupplied with large amounts of fuel. This particular promise of atomic energy, Katzin speculated, might facilitate the development of Canada's north and Alaska, with, for example, an atomic power plant constructed next to a pitchblende mine, such as that at Great Bear Lake in the Northwest Territories, supplying power to refine pitchblende ore into uranium on the spot, greatly reducing the cost of shipping and refining.²⁵³

More generally, Katzin wrote, atomic power would enable the growth and development of rural communities and isolated northern communities, with more diversified services largely freeing them from dependence on facilities in large cities.²⁵⁴ He predicted that greenhouses heated and lit by atomic energy would allow for the growth of fresh fruits and vegetables year-round, while atomic-powered cold-storage plants would enable the wintertime consumption of fresh produce harvested and frozen in the summer.²⁵⁵ He acknowledged only briefly the possibilities that radioactive isotopes would bring to science and medicine, which had been Laurence's main preoccupation, but anticipated that they "may mean more to the human race than ... industrial power."²⁵⁶

²⁵² *Ibid.*

²⁵³ *Ibid.*, 19.

²⁵⁴ *Ibid.*, 50.

²⁵⁵ *Ibid.*

²⁵⁶ *Ibid.*

Turning to the question of how soon his forecasts regarding atomic power would come to pass, Katzin argued that the engineering challenges of adapting atomic piles to industrial uses would be simpler than the challenges of originally designing them for plutonium production during the war. He predicted that, even without the wartime urgency which had speeded the Manhattan Project, an atomic pile supplying power for industrial use would be in operation within two years of “seriously attacking the design problem.”²⁵⁷ He cautioned, however, that, before atomic energy could be harnessed for peaceful purposes, the U.S. government would need to release atomic scientists from the wartime secrecy that still inhibited them from sharing their expertise with other scientists and engineers whose area of expertise was industrial power.²⁵⁸

The medical use of radioactive isotopes in the treatment of disease, which had so excited Bliven and Laurence, was also the subject of a November 1946 essay by medical doctor M.C. Dinberg, published in *Maclean's*. Dinberg opened his essay with the story of a medical patient suffering from polycythemia vera, a disease which caused the bone marrow to overproduce red blood cells, thickening his blood, “putting a heavy strain on [his] heart and lungs, and starving his tissues of oxygen.” All previous attempts at treatment had failed to mitigate the symptoms while causing “unavoidable, severe irradiation sickness,” but an injection of radioactive phosphorus dissolved in a saline solution into the patient’s bloodstream had caused the symptoms to virtually disappear within two years; he had not required another injection for 16 months. Dinberg explained that the irradiated phosphorus, travelling to the bone marrow in the same manner as

²⁵⁷ *Ibid.*

²⁵⁸ *Ibid.*, 51.

nonradioactive phosphorus, had slowed the production of red blood cells. “Revolutionary atomic medicine had chalked up another victory,” he wrote.²⁵⁹

The history of “atomic medicine,” Dinberg explained, had begun in the 1890s with the discovery of X-rays and radium, which had gradually become commonplace in the treatment of diseases such as cancer. The invention of the cyclotron in the 1930s had enabled the irradiation, via bombardment with subatomic particles, of substances critical to the body’s biological processes, allowing radiation treatments to be applied directly to the sites of disease. The invention of the atomic pile during the Second World War had drastically increased the amounts of radioactive substances available. While Dinberg acknowledged these substances were becoming available to physicians and medical researchers “only gradually,” he praised the “already exciting progress” made to that point.²⁶⁰ Another disease that radioactive phosphorus had proven effective in treating was leukemia, caused by bone marrow overproducing white blood cells. Though it remained incurable, experimentation had demonstrated that treatment with irradiated phosphorus was more effective than X-ray treatment in mitigating the symptoms and prolonging the patient’s life. Radioactive iodine had proven even more effective against diseases of the thyroid gland, usually curing these diseases with a single dose.²⁶¹

In addition to their use in treating disease, Dinberg was excited, like Bliven and Laurence, about the potential for using radioactive isotopes as “tracers” in medical research. Among the concrete benefits such research had already yielded, he informed his readers that radioactive iron had helped patients with iron-deficiency anemia by enabling

²⁵⁹ M.C. Dinberg, “Atoms for Your Ills,” *Maclean’s*, November 15, 1946, 19, 56-58.

²⁶⁰ *Ibid.*, 56.

²⁶¹ *Ibid.*

researchers to identify the most easily absorbed forms of iron. While diabetic patients had often required a high mid-thigh leg amputation due to gangrene caused by hardening of the arteries and consequent loss of blood supply, radioactive sodium enabled physicians to determine precisely how far the disease had progressed, allowing for lower amputations where possible.²⁶² Dinberg turned finally to one of the most challenging diseases of all: cancer. He reported that the use of isotopes in cancer treatment was receiving “serious, cautious thought and trial” in the medical community. Radioactive phosphorus had proven ninety-eight per cent effective in treating skin cancers, and one hundred per cent effective in treating precancerous skin lesions. Radioactive strontium, meanwhile, had achieved “encouraging results” in treating the pain and symptoms associated with secondary cancer of the bone.²⁶³

Despite the great promise shown by isotope treatments, Dinberg also noted that medical experts were cautioning against “excess enthusiasm and promiscuous use.” He cited as a cautionary tale the example of female watch-dial painters in an American watch factory who had unsuspectingly consumed lethal levels of radium-containing paint over several years by repeatedly wetting their brushes in their mouths. He reassured readers, however, that most medical radioactive isotopes expended their radioactivity within twelve hours or less.²⁶⁴ The biggest risk, in his view, was the exploitation of atomic medicine by charlatans looking for a profit, citing the example of a fraudulent “radium healing balm” sold nearly three decades earlier.²⁶⁵ While Dinberg stated in his conclusion that “The future status of atomic medicine is anyone’s guess,” he noted that the U.S.

²⁶² *Ibid.*, 57.

²⁶³ *Ibid.*, 57-58.

²⁶⁴ *Ibid.*, 58.

²⁶⁵ *Ibid.*

National Academy of Sciences was setting up a distribution system for medical isotopes to prevent them from falling into the wrong hands and anticipated that a similar system would be set up under the National Research Council in Canada. He predicted that cyclotrons and atomic piles would be set up at “strategic points” across North America and that Geiger counters would become as commonplace as X-ray machines in modern hospitals.²⁶⁶

Maclean’s interest in the use of radioactive isotopes in medicine and medical and scientific research continued with an article by George H. Waltz, Jr., published in the magazine in early 1948. Waltz focused on one of the possibilities that had animated William Laurence nearly two years earlier: using radioactive isotopes to reveal the secret of photosynthesis, thereby allowing scientists to artificially replicate the photosynthetic reaction in order to harness solar energy to supply humanity’s energy needs – an alternative to the dream of atomic energy powering society.

Waltz began his article by explaining one of the basic principles of modern biology, that all energy utilized by humans and other organisms on Earth ultimately originates in the Sun. Humans and other animals obtain energy for biological processes either by eating plants, which obtain it directly from the Sun, or else by eating other animals that obtain their energy from plants. Burning wood likewise releases the solar energy captured by trees, while burning fossil fuels releases the solar energy captured by prehistoric organisms millions of years ago. Scientists, Waltz explained, had determined that plants harnessed solar energy through the process of photosynthesis, by which

²⁶⁶ *Ibid.*

sunlight was used to synthesize sugars and starches from water and carbon dioxide. The precise mechanics of the process, however, remained “one of nature’s well-guarded secrets.”²⁶⁷

Once this “green key to life” had been unlocked, Waltz told readers, scientists might be able to replicate the process in order to synthesize fuels and foods artificially, “without the intermediate, time-consuming aid of nature’s green leaf!”²⁶⁸ He qualified this prediction by cautioning that most scientists doubted artificially-synthesized food would ever replace naturally-grown food, due to its “unappetizing” taste, lack of vitamins and minerals, and the overall lack of necessity for an alternative to naturally grown foods. However, knowledge of the mechanics of photosynthesis would potentially enable scientists to make natural photosynthesis more efficient, increasing crop yields and “perhaps” improving the nutritional quality of foods.²⁶⁹ Even more promising than the possibility of foods produced through artificial photosynthesis, in Waltz’s view, was that of converting the energy captured through the process into fuels as a substitute for “the world’s dwindling oil supplies.” He tempered this optimistic picture somewhat by cautioning that such a discovery might not come for “many years.”²⁷⁰ There were three approaches currently being attempted by scientists to unlock the “green key,” Waltz explained. The third of these, the most relevant for the purposes of this study, was to use radioactive “tagged atoms” to trace the “travels” of the constituent elements involved in

²⁶⁷ George H. Waltz, Jr., “The Green Key to Sun Power,” *Maclean’s*, February 1, 1948, 21, 40-41.

²⁶⁸ *Ibid.*, 21.

²⁶⁹ *Ibid.*

²⁷⁰ *Ibid.*, 21, 40.

the photosynthetic reaction.²⁷¹ Waltz noted that a breakthrough had not yet been achieved, but he was encouraged by the progress being made.

Ending the article on the same optimistic note with which he had begun, Waltz claimed that the amount of solar energy captured by all plants on Earth in a 12-hour period was one hundred times greater than the energy released by all the coal mined during the same period, despite the fact that “nature is little more than two per cent efficient.” “What will man with his fetish for efficiency be able to do,” he asked, “when he learns the process of artificial photosynthesis?” The answer appeared obvious: “[A]n unflinching and unlimited source of power will be at our disposal.” One future possibility that he suggested by way of conclusion was “a man-made photosynthesis system,” supplying the entire energy needs of a factory, office building, or apartment building.²⁷²

In the spring of 1949, *Saturday Night* published an article on atomic energy by English science journalist John Ralph that emphasized the technology’s positive benefits. Ralph visited and spoke to British atomic scientists at Birmingham University, basing his predictions regarding the future uses of atomic energy on his conversations with these men. The research being conducted by these British scientists and their Canadian and American counterparts, he predicted, “may transform our life in the space of 20 or perhaps 15 years.” There were three main channels into which atomic research was being developed, he explained: medical, industrial, and agricultural applications.²⁷³

²⁷¹ *Ibid.*, 40-41.

²⁷² *Ibid.*, 41.

²⁷³ John Ralph, “Peacetime Atomic Energy Is Man’s Best Friend,” *Saturday Night*, April 15, 1949, n.p.

Like Bliven, Laurence, and Dinberg, Ralph argued that perhaps the most important benefits of atomic energy for humanity were in the field of medical research. He deemphasized the prospect of an atomic miracle cure for diseases such as cancer, focusing instead on the potential for radioactive “tracers” to reveal how the human body functioned and how diseases disrupted this function, facilitating the prevention of disease. This “revolutionary” development in medical science would enable the medical community to focus on preventing disease, rather than curing or treating it after detection. Thanks to tracers, Ralph predicted, “the exact functions of the body may be known to medical science within the space of two or three years.”²⁷⁴

As for the use of radioactive substances in the treatment of disease, Ralph, like Dinberg, wrote that these were already beginning to be applied. In particular, he noted the use of radioactive iodine in treating diseases of the thyroid gland. He also anticipated that the use of radioactive substances in cancer treatment “may prove more effective than present forms of treatment.” However, he cited atomic scientists as saying that this aspect of atomic technology “should not be emphasized.”²⁷⁵

In the field of agriculture, Ralph, mirroring earlier predictions by Laurence and Waltz, discussed the potential for atomic tracers to be used to solve the mysteries of photosynthesis. Once this had been revealed, he believed that the mass production of artificially synthesized sugars might be possible. The application of tracer technology to agriculture, meanwhile, would “revolutionize food production” by aiding the development of more effective fertilizers and insecticides. One of the few caveats of

²⁷⁴ *Ibid.*

²⁷⁵ *Ibid.*

Ralph's mostly optimistic predictions was his admission that atomic science would not solve the world's food supply problems immediately. However, he insisted that future prospects "are illimitable."²⁷⁶ In the field of transportation, Ralph predicted the eventual arrival of the atomic-powered ship – with the stipulation that "considerable protective devices" would be required to shield passengers and crew from the radiation emitted by the ship's atomic power plant – followed possibly by atomic-powered trains and aircraft. Like Katzin and Laurence, Ralph dismissed the atomic-powered car as "sheer nonsense."²⁷⁷ Finally, in the area of power generation, Ralph anticipated that atomic power might replace coal as the primary power source in industry. However, he did not believe this would lead to the demise of coal, which would instead remain important as a source of "plastics, dyes, [and] edible fats and oils."²⁷⁸

The use of radioactive by-products in the treatment of disease remained a source of much optimism at the beginning of the 1950s. In January 1950, an article by John E. Pfeiffer in *Maclean's* described radioactive isotopes as one of the "new weapons in the war against cancer." Describing for his readers the latest medical advances in "the fight against cancer," Pfeiffer argued that the fight "is being won." It was not, however, being won through a sudden breakthrough producing "magic chemical bullets or miracle drugs," but, rather, through a "slow, steadily progressing ... war of attrition" waged by "an international army ... advancing on a carefully thought-out plan."²⁷⁹ This "war," he explained, was being waged on "three main fronts": early detection in patients who still

²⁷⁶ *Ibid.*

²⁷⁷ *Ibid.*

²⁷⁸ *Ibid.*

²⁷⁹ John E. Pfeiffer, "New Weapons in the War Against Cancer," *Maclean's*, January 15, 1950, 24, 34-35.

appeared healthy, unravelling the mystery of the ultimate causes of cancer, and finding more efficient ways of killing cancerous tissue.²⁸⁰

The most important of these “fronts,” for the purposes of this study, was the third. Like other commentators previously cited in this study, Pfeiffer described how radioactive isotopes, by-products of the atomic-bomb plant at Oak Ridge, Tennessee, were injected into the bloodstream and collected in particular areas of the body, providing an internal source of cancer-killing radiation. He informed readers that these had brought “improvements in some cases.” One problem was the difficulty of maintaining sufficiently large concentrations of these substances to kill cancer cells in large numbers. To overcome this, researchers had turned to a “fashionable textile dye” that stained cancerous tissue but not healthy tissue. They were attempting to devise a way to attach the cancer-killing isotopes to the dye molecules via a “firm chemical bond.” This treatment had only been attempted on mice, he reported, but was now beginning to be tested on human patients.²⁸¹ Pfeiffer concluded by declaring that “The scientific drive against cancer is hitting high gear.” While he cautioned there was “still no 100% cure for cancer,” he told readers that “the future is brighter than ever” and that doctors and scientists working in the field of cancer research expected a possible breakthrough “within the next few years.”²⁸²

By 1950, therefore, the initial atomic utopianism expressed in *Maclean's* and *Saturday Night* in 1945 had been disrupted by more pessimistic accounts in *Maclean's* and the *Saturday Evening Post* of the potential of atomic power generation. These more

²⁸⁰ *Ibid.*, 24.

²⁸¹ *Ibid.*, 34-35.

²⁸² *Ibid.*, 35.

measured accounts, however, are interesting for their ambivalence regarding the nonmilitary use of atomic energy. On the one hand, commentators in *Maclean's* and the *Post* brusquely dismissed the possibility of atomic automobiles or aircraft as well as that of virtually free heat and electricity supplied exclusively by atomic power. On the other hand, *Maclean's* and *Saturday Night* continued to hold out hope over the rest of the decade for atomic power generation exercising a significant supplementary role alongside coal, petroleum, natural gas and hydroelectricity, while all three magazines largely transferred their quasi-mystical faith in the peaceful side of the atom from power generation to radioactive isotopes, increasingly seen as *the* key to the diagnosis, treatment and prevention of disease, and even to creating a new source of power generation by unlocking the secret of photosynthesis. Ultimately, though, there was no disguising the fact that this optimism toward isotopes represented a significant retreat from earlier utopianism.

Conclusion

As this thesis has shown, coverage of the early atomic age in *Maclean's*, *Life*, *Saturday Night* and *The Saturday Evening Post* between 1945 and 1950 revolved around certain key themes. As Chapter One has described, all four of these magazines, particularly *Life* and *Maclean's*, established an early preoccupation with the threat posed to North America by the new weapon. From a twenty-first-century perspective, this preoccupation, manifesting itself in graphic predictions of future atomic warfare in the fall of 1945, seems almost remarkable, coming as it did at a time in which the Allies had recently triumphed in the Second World War, the United States possessed a monopoly on the atomic bomb, and the Cold War had not yet begun. Commentaries at the time, however, generally operated on the assumption that “Within a very few years every industrial nation in the world will be equipped with the atomic bomb,” in the words of a December 1945 *Maclean's* editorial.²⁸³

Written in the immediate aftermath of the immense destruction and loss of life of the Second World War, these early predictions contended that a future war fought with atomic bombs would be substantially more destructive even than the recent war. They also argued that North America would be vulnerable in a future war, particularly if the atomic bomb were mated to an improved version of the German V2 rocket; that no defence would be completely impervious; and that an atomic war would be so destructive to both sides that the very concepts of “victor” and “vanquished” would be rendered obsolete.

²⁸³ “Humanity’s Last Chance,” *Maclean's*, December 1, 1945, 1.

These general conclusions motivated the political stances the magazines adopted toward the atomic bomb, which were explored in the first section of Chapter Two. Beginning in the fall of 1945 and continuing into 1946, all four magazines urged the immediate establishment of a world federal government, or, at a minimum, an international authority with sole control over all atomic energy research and fissile material, as a prerequisite to the abolition of the atomic bomb. This was widely seen as the sole realistic option to prevent an apocalyptic future atomic war of the kind envisioned at the time.

As Chapter Three has shown, this was not the extent of these magazines' reactions to the early atomic age. The articles analyzed in the first section of Chapter Three demonstrated a strong belief, based more on faith than evidence, that the incredible destructive power unleashed by the splitting of the atom must be equally remarkable when channeled toward more constructive ends. Taken together, the coverage during the immediate post-Hiroshima months demonstrates that early visions of the atomic future betrayed a dichotomous belief in the almost mystical power of the atom as either a weapon which would bring about the end of civilization, if used irresponsibly, or a potential saviour which would lead to a utopian future, if used responsibly. As Chapter Two has shown, international control of atomic energy was seen as a prerequisite to its harnessing toward constructive ends.

Both aspects of this binary portrayal of the power of the atom were tempered somewhat as the decade continued. On the one hand, as Chapter Three demonstrates, the early utopian predictions of an atomic power revolution, pushed by popularizers like John J. O'Neill and Bruce Bliven, were undermined by more cautious forecasts, such as that of

nuclear physicist Leonard I. Katzin, warning that atomic power was likely years away and would ultimately supplement, rather than supplant, existing power sources. On the other hand, the commentators cited in the second section of Chapter One partially countered the earlier apocalyptic atomic war scenarios by stressing the limits of the bomb's destructive power, depicting an atomic war as an eventuality that could be adequately prepared against, and even won.

The emerging international politics of the Cold War certainly played a role in these shifting assessments of atomic war, as they also did in the shifting attitudes toward international control analyzed in Chapter Two. While *Saturday Night* and *The Saturday Evening Post* had both cited the Soviet Union's authoritarian system as an obstacle to achieving world government in 1945, Cold War partisanship increasingly crept into the magazines' assessments of the realistic chance of achieving international control from 1947 onward, with all four viewing the USSR's official secrecy as the primary obstacle. This change is perhaps most evident in *Life* magazine. A staunch supporter of atomic research openness and international control and a harsh critic of the U.S. government's atomic secrecy in fall 1945, by winter 1950, *Life* had become an anti-Soviet hawk urging preparations for both atomic and conventional war and paying only lip service to its earlier arguments.

Although this shift is evident in both the Canadian and American magazines, it is less pronounced in *Macleans* magazine. Blair Fraser's 1947 feature article on American atomic secrecy and the international-control negotiations, for example, was notable for its fair-mindedness on the problems impeding international control, suggesting that Western nations, no less than the USSR, would balk at the limitations to their sovereignty any

such scheme would entail. *Maclean's* also voiced a distinctly Canadian perspective in 1947, and again in 1949, by criticizing the U.S. government for the excessive secrecy it had imposed surrounding atomic energy resources and research, pointing out the ways this severely inconvenienced the nonmilitary atomic research of Canada and other U.S. allies and suggesting it displayed an irrational level of secrecy.

The differences between *Maclean's* and its American counterparts on this issue should not be exaggerated. Despite its repeated criticism of American nuclear secrecy, *Maclean's* did not regard it as a major obstacle to the establishment of international control, and *Life* put forward its own criticisms which largely mirrored those of *Maclean's*. Neither magazine objected in principle to secrecy *per se*; in the context of the growing Cold War, both viewed some measure of secrecy as necessary as long as international control remained out of reach. The problem, as both identified it, was an excessive and irrational level of secrecy being imposed upon areas of atomic research not directly related to the manufacture of atomic bombs, which both condemned as a threat to the free and open exchange of ideas that formed the bedrock of Western science and Western democracy and that would be essential for the development of nonmilitary atomic energy.

An important aspect of the magazines' coverage of the early atomic age was the use of expert testimony to back up their assertions, in an era when the public was much more likely to accept such testimony uncritically. The early forecasts of a destructive future atomic conflict, for example, were authored either by retired military officers such as J.F.C. Fuller and Stephen King-Hall, or by journalists who specialized in military matters, such as Hanson W. Baldwin. Even in cases where the authors were not

necessarily “experts” themselves, they cited individuals who were regarded as such. The anonymous author(s) of *Life*’s November 1945 atomic war scenario, for example, based their conclusions on a recent report by the U.S. Army Air Forces’ General Henry H. Arnold. Concurrently, magazine editorials urging the formation of a world government and international control of atomic energy relied upon the testimony of atomic scientists, such as those who contributed an opinion piece to *Life* in October 1945, asserting that any alternative course of action was futile.

This reliance on experts to lend an air of authority and objectivity to whatever point of view was being promoted continued over the rest of the decade. Articles evaluating atomic power generation and radioactive isotopes tended either to be written by specialists such as nuclear physicist Leonard I. Katzin and physician M.C. Dinberg or to cite such experts in support of their conclusions. Blair Fraser, in his 1947 *Maclean*’s article on American atomic secrecy and international control, similarly based his conclusions on the professional opinions of anonymous Canadian atomic scientists and diplomats, while the magazines continued to rely mainly on retired military officers such as Wallace Goforth and Carl Spaatz to advise the magazine-reading public on preparations for atomic war. Even when expert testimony was called into question, such as in Willson Woodside’s 1949 opinion piece interrogating the confident assertions of airmen such as Spaatz that a third world war with the Soviet Union could be won through airpower alone, rival expert testimony was called upon, in this case the contrary assertions of U.S. Navy admirals.

By 1949 and 1950, the early vision of the atomic age articulated by popular Canadian and American magazines in 1945 had been significantly altered by subsequent

developments. The initial Manichaeian predictions that the atomic bomb would either remain in the hands of individual sovereign states, and a destructive atomic war would inevitably result, or that atomic energy would be harnessed by a responsible international authority and would immeasurably improve society, had been disrupted by the more tempered pronouncements regarding atomic power's potential as well as the breakdown of the international-control negotiations and the development of the bomb by the USSR.

Popular magazines on both sides of the border continued to discuss atomic war scenarios in 1949-50, as they had in 1945; nevertheless, subtle changes are evident. The scenarios of 1945 portrayed an atomic war as unwinnable, or at least as one in which the cost of victory would be dear, avoided naming the enemy, and used the as-yet merely hypothetical possibility of atomic war (in a time of American atomic monopoly) to encourage public awareness of the threat posed by atomic weapons. By 1949-50, however, atomic war had become a realistic scenario, the Soviet Union, now armed with atomic bombs and the Cold War foe of the Western powers, had become the obvious opponent, and a continued emphasis on the vulnerability of North America to atomic attack was now aimed at raising public awareness about the need for war preparations, rather than the need for international control. The identified threat was no longer atomic weapons in general, but Soviet atomic weapons in particular. While the magazines continued to express hope for international control of atomic energy as the decade ended, they had lost the urgency and fervour of 1945, when this was still regarded as a realistic possibility; unless and until the USSR accepted U.S. proposals for international control, the magazines urged the Western nations (in this case essentially meaning the United

States) to maintain their lead in atomic research and as great a level of secrecy as was militarily necessary, but no more than this.

At the same time as atomic war seemed to draw closer and international-control hopes faded, upbeat predictions regarding the transformative positive impacts of atomic fission continued to appear, although, with the prophesied atomic utopia having so far failed to materialize since 1945, these had come to concentrate upon the more limited benefits which radioactive isotopes would supposedly bring to the fields of biology and medicine. Even here, as Chapter Three demonstrates, there remained optimism regarding the ability of isotopes to aid in the treatment and prevention of diseases such as cancer, alongside more grandiose predictions of artificially replicating photosynthesis as a new power source. There also remained hope for atomic power generation, once it finally arrived, albeit in a supplementary role. Despite this continued current of optimism, the balance between the “good” and “evil” aspects of atomic energy alluded to by *Maclean's* and *The Saturday Evening Post* in their first atomic-age editorials appeared to have swung decidedly in favour of the latter by 1950.

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