

THE NATURAL BUSINESS OF A SCIENTIST:  
THE ATOMIC SCIENTISTS' MOVEMENT IN AMERICA

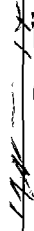
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This thesis examines the activities and beliefs of a group of scientists, mostly former Manhattan Project workers, who were politically active in the years immediately following WWII. Their organized activities formed what we call the Atomic Scientists' Movement. Through groups including the Federation of American Scientists, the Atomic Scientists of Chicago, and the Association of Los Alamos Scientists, and publications including the Bulletin of the Atomic Scientists, these men and women promoted policies of civilian control of atomic research and some form of international agreement governing the manufacture and use of atomic devices.

In spite of frequent requests by their critics to constrain their official opinion to matters of established scientific fact, these movement scientists were either unable or unwilling to make such a distinction: in the years following the war, these scientists claimed expert authority over all things nuclear, whether that be the nuclear laboratory or atomic energy politics.

This paper argues that this perspective on science and society is very similar to that explored from the 1960s forward by individuals doing work in the history & sociology of science, or "science studies" and works particularly with the work of Bruno Latour in order to name and explain the issues at work in the scientists' movement's redefinition of a scientist's proper place. The work of the movement scientists provided an entirely new way of thinking and popularized that way of thinking, fifteen to twenty years before those same ideas gained currency in the formal academic world. For those who recognized it, the atomic bomb provided the catalyst for the dissolution of conventional boundaries between science and society: from that point forward, for at least some part of the American public, politics clearly and obviously affected the pursuit of science, and scientists clearly and obviously had relevant perspectives on social issues.

We scientists ask public support of our efforts to bring realization to America that mankind's destiny is being decided today, now, this moment. We must let people know that a new type of thinking is essential if mankind is to survive and move toward higher levels.

-Albert Einstein, 1946

In some sort of crude sense in which no vulgarity, no humor, no overstatement can quite extinguish, the physicists have known sin; and this is a knowledge which they cannot lose.

-J. Robert Oppenheimer, 1947

I meant that we had known the sin of pride. We had turned to effect in what proved to be a [major] way the course of man's history. We had the pride of thinking we knew what was good for man, and I do think it left a mark on many of those who were responsibly engaged. This is not the natural business of a scientist.

-J. Robert Oppenheimer, 1965

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## List of Acronyms Used

ALAS: Association of Los Alamos Scientists

ASAE: American Scientists for Atomic Information

ASC: Atomic Scientists of Chicago

*BAS: Bulletin of the Atomic Scientists*

ECAS: Emergency Committee of Atomic Scientists

FAS: Federation of American Scientists

FBI: Federal Bureau of Investigation

HUAC: House Committee on Un-American Activities

NCAI: National Committee for Atomic Information

## Introduction

On August 6, 1945, at 8:50 am, an atomic bomb called “Little Boy” was dropped on Hiroshima, introducing the world to the breathtaking, appalling power of the atomic bomb. As the world reeled from this revelation, many of the scientists who helped to create it stepped into a role unfamiliar to them: that of the political activist. Believing that the atomic bomb forever changed the relationship of science to society, these individuals began crafting a warning for the American government and the public at large. Concerned with their part in creating a more dangerous world, these Manhattan Project scientists assumed the burden of guiding civilization toward safer, more peaceful paths. Their efforts formed what we now call the atomic scientists' movement.

The men and women of the atomic scientists' movement brought to a roar sentiments that had been but a whisper in the years before the war: science is more than an isolated search for knowledge; science and its products have impacts upon society and society's structures impact the pursuit of science; scientists have obligations to steward their creations and perhaps to guide their work toward crafting a better world. This view differed sharply from common conceptions of science as an impersonal, apolitical, and esoteric endeavor. The persistent and widespread work of the atomic scientists' movement in the years immediately following the war made socially relevant science conceivable and even credible to a large portion of the American public.

While we can find prewar examples of socially involved scientists, the

magnitude and public presence of this involvement changed drastically after the war: for most scientists, the atomic bomb made plain the extensive networks linking science and society. However, the activist scientists were not the only players with strong views about the relationship between science and society. Scientists who had worked through the war administrating government laboratories had strong ties to the system they were working under: a system which gave them the privileged status as spokesmen for all of American science. Officials in the government and the military were also strongly invested in the framework of isolated and apolitical science, as they found the products of science (i.e., bombs) much more useful than the opinions of scientists.

#### BRUNO LATOUR AND THE MODERN CONSTITUTION

To better define and discuss the competing worldviews addressed in this thesis, we will look to Bruno Latour's description of the "modern constitution" as outlined in his 1991 work *We Have Never Been Modern*. The modern constitution is a way of categorizing and understanding the world which, Latour claims, has dominated Western thought since the middle of the seventeenth century.<sup>1</sup>

Latour uses the word "constitution" to convey a set of rules establishing branches of power (such as those of government) and the separations between them. By "modern," he means the common historical usage describing a period

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<sup>1</sup> For the classic treatment of the origin of the social/scientific divide in the seventeenth century, see Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985.)



beginning in the seventeenth century and extending through sometime in the twentieth century. However, Latour points out that we can glean much more from the term “modern” than simply a designation for a period of time. To declare something modern we also declare what came before to be archaic: we evoke ideas of progress and acceleration. The modern constitution is the set of rules which make the modern period work, which define its way of thinking and of categorizing the world.

What makes the modern period tick, according to Latour, is a set of “guarantees” designating the relationships between nature and society. The first guarantee, “even though we construct Nature, Nature is as if we did not construct it,” declares that although we discover the truths of nature in laboratories using apparatuses of our own fabrication, those truths nonetheless exist outside of us and are transcendent. The second guarantee, “even though we do not construct Society, Society is as if we did construct it,” declares that society exists solely because human will designed it, ignoring that society consists of the interaction of human beings with each other and the natural world whether or not that interaction was consciously designed.<sup>2</sup>

The third guarantee, most vital to the work at hand, declares that “Nature and Society must remain absolutely distinct.”<sup>3</sup> This promise of the modern constitution is the glue which holds the other two together. If one tries to consider Nature and Man transcendent at the same time a clear contradiction

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<sup>2</sup> Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge: Harvard University Press, 1991) 32.

<sup>3</sup> *ibid.*

arises. By keeping these two spheres permanently divided, the modern way of thinking takes shape: Latour calls this process of constant separation the “modern critical stance.” The moment that we allow these two spheres to cross into one another, breaking the third guarantee and thus defying the first two as well, we cease to be modern.<sup>4</sup>

This is not to say that objects which cross this boundary do not exist; to the contrary, the modern way of life constantly multiplies such objects. These objects, mixtures of nature and culture, Latour dubs “hybrids,” while the practices that create them are “networks.” We can see hybrids everywhere in our society, among them is the phenomenon of global warming, which combines human actions with environmental responses, which are then measured by scientists and responded to by politicians. Other hybrids are stem cell research, psychotropic drugs, abortion, and certainly the atomic bomb: a combination of scientific harnessing of natural forces with the desire of nations to demolish one another. However, as soon as these hybrids are created, the modern critical stance intervenes. Political aspects of a particular problem are relegated to the political sphere and dealt with by political experts; natural aspects are studied by scientists, who proclaim truths about the natural world. This process of purification is absolutely central to perpetuation of the modern constitution.

It is important that we distinguish between the concept of hybrids as described by Latour and the notion put forward by the Edinburgh School of science studies that the social aspects of science go “all the way down,” that is,

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<sup>4</sup> *ibid.*

science is *nothing but* a social creation. In discussing hybrids, we illustrate that the categories of “nature” and “culture” are inherently artificial, created by man and upheld by the tenets of the modern constitution. This is not to say that there is no truth in science: clearly, the work of scientists is effective in understanding, manipulating, and controlling the natural world. Rather, the work at hand explores the idea that there is no way to draw a line between the scientific and the political.

While Latour is certain that the modern constitution is unraveling, he seems unsure of exactly when this dissolution began. He estimates that it has been underway “for twenty years or so” and later cites Serge Moscovici's 1977 *Essai sur l'histoire humaine de la nature* as a milestone in the amodern perspective.<sup>5</sup> To this we can certainly add Thomas Kuhn's *The Structure of Scientific Revolutions*, published in 1962, as a definitive moment in thinking about science and society in tandem. However, the work of activist scientists in the years following the second world war already displayed a perspective divorced from the restrictions of the modern constitution.

The members of the atomic scientists' movement from 1945 to 1950 explored new ground by claiming authority in the political sphere on the basis of their scientific knowledge. Their work was based on the premise that the atomic bomb created a permanent change in the relationship between science and society. This is a more conservative statement than Latour's claim that the

<sup>5</sup> Latour 3, 15. Following Latour, I use the term “amodern” to describe that way of thinking that follows the dissolution of the modern constitution, and not “postmodern,” a philosophical movement which Latour considers only a symptom of this deterioration. He describes postmodernism as “intellectual immobility,” “the abdication of thought,” and a victim of “self-inflicted defeat” (61).

networks between science and society have always existed. Nonetheless, by highlighting these networks the atomic scientists' movement chipped the first hairline fractures across the face of the modern constitution. Though patched for a time by the efforts of McCarthyism, it would irrevocably shatter in the 1960s and beyond.

#### THE PATH AHEAD

This thesis is divided into three chapters. The first two follow actions that took place roughly concurrently, while the third falls chronologically later. All three chapters focus on the atomic scientists' movement: origins, goals, methods, impacts, and eventual demise.

The first chapter introduces the movement, primarily composed of young men working in the laboratories of the Manhattan Project. While they tried to exert some political influence during the war, it wasn't until the war's end that the atomic scientists' movement was able to speak publicly about the bomb and its implications. The efforts of the movement split in two complimentary directions from the outset, one devoted to public education and the other to achieving specific policy objectives. Its policy-oriented work first addressed the defeat of the May-Johnson bill, second, the passage of the McMahon act, and third, the establishment of an international system for managing atomic energy. The May-Johnson bill was introduced in October 1945 and served as a call-to-arms for the atomic scientists, who viewed it as establishing total military control of nuclear science. This bill was essentially defeated by December 1945, and in January

1946 Senator Brian McMahon, a movement ally and chair of the Senate Special Committee on Atomic Energy, introduced a bill which encompassed the atomic scientists' movement vision for appropriate domestic control of nuclear science. However, the path toward passing this bill was rocky. Scientific communications between colleagues began to look increasingly like security risks as tensions mounted between Russia and the U.S. The bill was modified to reflect these growing fears and scientists who disagreed with the changes were painted as potential spies. Such accusations of un-American activities would serve as increasingly useful tools for the movement's opponents, as we will see in chapter 3. However, in August the bill passed both houses and was signed into law: a second political victory for the scientists.

Chapter 1 concludes by discussing the drive for international control: the goal the scientists most wanted to achieve but least understood how to pursue. Their work focused on serving in advisory roles for policy thinktanks and on lobbying the public for support. A plan to their liking was sent to the U.N., but domestic public support was ineffectual in changing the views of international leaders. Negotiations at the U.N. lagged and after a few years were declared deadlocked: international control was not to be.

Chapter 2 looks again to the movement's first few years to examine more closely what the scientists were saying to the public, as opposed to their political pursuits in Washington. This analysis is an in-depth look at how they justified different sorts of appeals, from the book *One World or None*, their greatest educational effort, to frequent requests for funds by means of telegram or letter.

Throughout this chapter we see the theme of a post-atomic world which requires a new and different understanding of scientists and society, as well as the call for the common citizen to learn as much possible about nuclear science. In their petitions to the public even more than their work with politicians, movement scientists seem to ignore the modern constitution. They unblinkingly highlighted the networks that had long been hidden.

The third chapter examines the end of the movement. While the troubling lack of progress in the U.N. sapped enthusiasm from the campaign, the more drastic blows came from red-baiting both within and without. In the summer of 1946 Daniel Melcher, the head of atomic scientists' organization the National Committee for Atomic Education, was fired by the executive committee of that organization. Although the committee claimed otherwise, FBI documents make it clear that Melcher was fired in an attempt to purge from within any potential communist influence. Beginning in 1947, scientists who had been involved in the movement or other political causes on the left began to encounter increasing difficulties in obtaining security clearances necessary for their work. Of these, the best publicized was the case of Edward Condon, chair of the National Bureau of Standards. Accused of associating with spies, Condon faced hearings before the House Committee on Un-American Activities and struggled for years under the burden of its suspicions: although he was never found guilty, distrust followed him for the rest of his career.

In the face of so much outside anti-communist sentiment, the movement began policing its speech from within. Memos declaring that statements should

be categorized, with political opinions carefully and explicitly distinguished from scientific facts, show that the modern constitution had been reasserted not only in the minds of the American public but inside the movement as well. By 1950, financial and political troubles essentially shut down the movement.

In these last years of the movement we see the justification used to reassert the modern constitution: the idea that politically involved scientists were not only unqualified politicians, they were a threat to national security and therefore must be silenced. This steady purging of scientists who defied the modern constitution disrupted thousands of careers throughout the 1950s. However, by 1962 the ideas first seen in the atomic scientists' movement were blooming elsewhere. While the atomic bomb was the first hybrid object with undeniably obvious networks between nature and culture, the years that followed brought countless more; as Latour says of the late twentieth century, "it is as if there were no longer enough judges and critics to partition the hybrids."<sup>6</sup>

The atomic scientists' movement made many of the same claims as the later historians and sociologists of science. They also offered a much different model for the political involvement of scientists than that in the United States today. Rather than requiring a few appointed scientists to represent all science before the halls of government, the scientists' movement suggests that a vital, politically involved scientific community can provide valuable and broad-based insight into the governance of hybrids.

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<sup>6</sup> Latour, 50.

## Chapter 1 The Atomic Scientists' Movement: Policy Objectives

What was the atomic scientists' movement? For more than a year following the end of WWII it was an almost constant presence in U.S. magazines and newspaper editorial pages. Its speakers frequented citizen's groups and lecture halls across the country and saturated the airwaves with broadcasts and interviews. In our era of soundbytes and here-today, gone-tomorrow news, it is difficult to envision the persistence with which movement scientists kept their cause in the public eye. And what was this cause? While it took on different particulars depending on political events of the day, it had to do with an overwhelming sense of something wrong in the state of science, and more broadly in the relationship of science to the state. The scientists who made up the atomic scientists' movement wanted to bring their knowledge of nuclear energy and the threat of nuclear weapons to the public as well as to government officials, conveying not only information about atomic bombs but also political and social ideas about the way science should be managed. They did not feel that engaging in such political activities was inappropriate; to the contrary, they felt that their knowledge and their work obligated them to do so.

The atomic scientists' movement grew out of feelings of discontent and worry in the Manhattan Project laboratories during wartime, growing into the formation of formal organizations after the use of atomic bombs in Hiroshima and Nagasaki in August of 1945. These organizations included the Atomic



Scientists of Chicago, the Association of Oak Ridge Scientists, and the Association of Los Alamos Scientists. While it is difficult to estimate the membership of these associations, one petition from the Clinton Labs at Oak Ridge was reported to bear more than one hundred signatures. These groups were founded without great fanfare, and indeed for two months following the bombings were publicly quiet. According to physicist Leo Szilard, they were “requested by the War Department to exercise the greatest possible reserve.”<sup>7</sup> This order came from General Leslie Groves, military commander of the Manhattan Project, and was probably passed along through laboratory leaders such as J. Robert Oppenheimer and Arthur Compton, who were serving in high-status government advisory roles at the time.<sup>8</sup>

This restraint was broken on October 3 of that year, when the War Department released the May-Johnson Bill for military control of atomic energy. The groups that made up the atomic scientists’ movement suddenly had a political cause, as the May-Johnson Bill’s emphasis on military uses of atomic energy and rigid peacetime secrecy threatened to institutionalize many of the movement scientists’ fears: perpetuation of the war-time security measures on atomic science and the development of atomic energy for predominantly military objectives. By October 31, concerned men and women from every major Manhattan Project laboratory had gathered in Washington DC to found a national organization: The Federation of Atomic Scientists.

The atomic scientists’ movement had at its head several prominent

<sup>7</sup> Leo Szilard, “We Turned the Switch,” *The Nation*, CLXI (December 22, 1945), 718-19.

<sup>8</sup> Barton J. Bernstein, “Four Physicists and the Bomb: The Early Years,” *HSPS* (18:2), 247.

scientists, including Nobel laureate Harold C. Urey, a chemist who worked during the war at the Manhattan Project's Substitute Alloy Materials Laboratory at Columbia University and Edward U. Condon, founder of MIT's Radiation Laboratory and briefly the assistant director of Los Alamos in 1943.<sup>9</sup> Albert Einstein also served from 1946 as chair of the Emergency Committee of Atomic Scientists, a fundraising organization created in support of the movement. However, the movement drew its identity from its membership: predominantly young, working scientists of the rank-and-file. In fact, the individuals not present in the movement speak more to its character than those who were a part of it: laboratory leaders and scientists who already had the government's ear through advisory positions, notably Ernest Lawrence, J. Robert Oppenheimer, James Conant, Arthur Compton, and Enrico Fermi, were not involved.

At the Washington office of the Federation of Atomic Scientists, of the twenty-three delegates present in November 1945, six were thirty-five or older, while most were between twenty-nine and thirty-two.<sup>10</sup> The overwhelming youth of the atomic scientists' movement membership is not particularly surprising, however. The Manhattan Project employed primarily young men, and while the project's leadership was older, this leadership was more engaged with government work. Laboratory scientists and support workers were encouraged to

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<sup>9</sup> Jessica Wang, "Scientists and the Problem of the Public in Cold War America, 1945-1960," *Osiris* (17, 2002), 329.

<sup>10</sup> Alice Kimball Smith, *A Peril and A Hope: The Scientists' Movement in America, 1945-1947* (Chicago: University of Chicago Press, 1965), 248. This text is the standard source on the atomic scientists' movement. It is an excruciatingly detailed text, which relies on movement correspondence and other archival materials, often giving a day-by-day account of movement activities. While I often object to Smith's uncritical stance toward all players in the movement, her rich detail makes the work invaluable given my inability to access many of her sources.

engage with the problems of the laboratory, and to leave thinking about political issues to their superiors who were already closely tied to government decision-making. Disappointment over the failure of early efforts to prevent the bomb's use, as well as frustration with these high-status individuals' public silence, drove the rank-and-file to step into the political realm themselves.

#### EARLY DISSENT: SCIENTISTS SPEAK UP BEFORE THE BOMBINGS

For some Manhattan Project scientists, the impulse toward activism began before the bomb was used. In 1944, the physicist Niels Bohr met with Winston Churchill and President Roosevelt to try to persuade them that warning the Russians about American development of the atomic weapon would help to discourage a post-war arms race<sup>11</sup>. Bohr's memorandum focused on the "perpetual menace to human security" that would be posed by such a race. He summarized:

The prevention of a competition prepared in secrecy will therefore demand such concessions regarding exchange of information and openness about industrial efforts, including military preparations, as would hardly be conceivable unless all partners were assured of a compensating guarantee of common security against dangers of unprecedented acuteness.<sup>12</sup>

Bohr's meetings with both leaders went badly, and in spite of a number of subsequent memos, nothing came of his efforts. On September 18, 1944, Churchill and Roosevelt signed an *aide-memoire* stating that, when ready, the

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

<sup>12</sup> Quoted in Robert Gilpin, *American Scientists and Nuclear Weapons Policy* (Princeton: Princeton University Press, 1962), 43.

bomb could be used against the Japanese. They also discussed Bohr's proposal, which they dismissed outright "on the grounds that the time had not yet come to tell the world about the bomb."<sup>13</sup>

In June of 1945, the scientists at the University of Chicago's Metallurgical Lab issued a report concerning the moral implications of using the bomb without warning, as well as about the course of policy regarding nuclear energy after the war. Drafted by the physicist James Franck and called the Franck Report, it stressed the need for international control of atomic energy following the war in order to prevent a nuclear arms race.<sup>14</sup> This report was more policy-based than Bohr's memorandum: the authors claimed authority based on their "acquaintance with the scientific elements of the situation and prolonged preoccupation with its world-wide political implications..."<sup>15</sup> The Franck report stated that averting an arms race should be the primary goal of US nuclear policy, and that to this end nuclear weapons should not be used in warfare and should only be publicly demonstrated if the prospects for international control looked favorable, as the only real "secret" of the bomb was that it worked. A public test without provisions for international controls would be "a flying start towards an unlimited [nuclear] armaments race."<sup>16</sup> Therefore, the report recommended that the government consider the option of *not* demonstrating or using the weapon, so that other governments would "come into the race only reluctantly, on the basis

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<sup>13</sup> Smith, 11.

<sup>14</sup> Daniel J. Kevles, *The Physicists: The History of a Scientific Community in Modern America* (Cambridge, Massachusetts: Harvard University Press, 1995), 335.

<sup>15</sup> Quoted in Gilpin, 45.

<sup>16</sup> *Ibid*, 46.

of guesswork and without definite knowledge that ‘the thing does work...’” Like Bohr’s memo, Franck’s report had little effect. Due to obvious security concerns, the pleas of the scientists did not become public until after the bomb’s use made the existence of nuclear energy widely known.

This is not to say that government decision makers had no scientific input while making decisions regarding the bomb. Lawrence, Oppenheimer, Fermi, and Compton constituted the special Scientific Advisory Panel to the Interim Committee on the atomic bomb, chaired by Secretary of War Henry Stimson and including scientific administrators Vannevar Bush, Karl Compton, and James Conant.<sup>17</sup> However, knowing the close ties between the scientist administrators and their government colleagues the concerned scientists at Chicago and elsewhere feared that none of these would be voices of dissent. They therefore felt a moral obligation to bring their concerns forward. Furthermore, there was a general feeling that misconceptions regarding atomic energy, particularly with regard to the idea of a “secret” of the bomb, were already beginning to taint policy-making. As the input of the high-level scientists did not seem sufficient to allay these destructive ideas, concerned scientists from the rank-and-file tried to find ways to educate those with power. In fact, we will later find a consistent tendency among these government-affiliated scientists to be more trusting of the military and more willing to rely on the government’s good intentions than their counterparts in the rank-and-file, even where explicit policies were lacking.

Immediately following the bombings of Hiroshima and Nagasaki the social

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<sup>17</sup> Gilpin, 47.

implications of their work became of paramount importance to many Manhattan Project workers. While scientists at Clinton Laboratories had been worrying over the problems of the post-atomic age for three years, it was this post-war moment that led to the foundation of scientists' organizations at most major laboratories. It would be simplistic to claim that the carnage following the atomic bomb was necessary to bring a conscience to science as a whole, and the organization of several socially concerned scientist groups formed in the 1930s, such as the American Committee for Democracy and Intellectual Freedom and the American Association of Scientific Workers, show that some portion of the American scientific community had long been concerned with the social aspects of science.<sup>18</sup>

However, the bomb provided a focal point that allowed the concerns of a few, held in private, to become the concerns of the many, publicly announced. The ideological basis of the nascent groups was vague, but revolved around concrete points of consensus. First, as scientific discoveries could be independently reproduced in other nations, it was inevitable that other nations would soon have the bomb: there was no "nuclear secret" to be preserved. Second, that international control of atomic energy, and perhaps even a world government, was the only way to prevent a massive and broad-sweeping nuclear arms race. The scientists also shared concerns over whether the massive secrecy provisions they had worked under during the war would continue during peacetime, and how nuclear projects would be administered domestically.

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<sup>18</sup> For an extensive treatment of pre-war scientific activism, see Peter J. Kuznick, *Beyond the Laboratory: Scientists as Political Activists in 1930s America* (Chicago: University of Chicago Press, 1987).

## THE MAY-JOHNSON BILL: A POLITICAL RITE OF PASSAGE

The May-Johnson Bill was a piece of legislation aimed at establishing a system of domestic control of nuclear projects, hastily written by the War Department in the weeks following the war's end. Introduced on October 3, 1945 by Senator Edwin C. Johnson of Colorado and Representative Andrew J. May of Kentucky, the bill almost immediately received the official endorsement of three of the four members of the Scientific Advisory Council: Oppenheimer, Fermi, and Lawrence. The scientists in the newly formed movement groups, however, were more suspicious. In the vague and broadly framed legislation, they saw the potential for all branches of atomic science to be ruled by a military council. They saw threats to the free exchange of scientific research, and exceedingly harsh repercussions for violations of secrecy provisions. More than anything else, they saw a militant tone that seemed to assume an arms race already in progress— a detriment to their goals for international negotiations and eventual world control of atomic energy.<sup>19</sup>

In retrospect, it is important to note that this bill was not an overt power-grab for military control. Rather, it established two full-time positions, an administrator and deputy-administrator, at the head of a part-time commission. These individuals would be appointed by the President with the Senate's consent, but could be removed at any time by the President for causes in the "national interest." Although the bill neither required nor banned military personnel in these positions, some scientists interpreted it as having clear intentions. Los

<sup>19</sup> The third and fourth chapters of Smith's book deals with the May-Johnson struggle in great detail, and are my source for this section unless otherwise noted.

Alamos physicist Herbert Anderson explained in a letter to Association of Los Alamos Scientists chairman William Higginbotham: "...at the Met Lab the wording of the bill was being interpreted to mean that the administrator would be an army man, his deputy a navy man, and that the other members, since they would be part time with their chief obligations elsewhere, would probably leave much of the responsibility in the hands of the administrators."<sup>20</sup>

It was not only the structure of the new committee that upset movement scientists, but also the broad authority that would be given to it. The bill did not require government ownership of nuclear materials or plants, but it gave the commission custody of all ores, plants stocks, processes, technical information (and its sources!), contracts, leases, patents and patent applications, and "any other rights of any kind judged to be relevant."<sup>21</sup> The bill also gave the commission plenary power over research whenever fission or transmutation of atomic species was involved on any scale, but was instructed to encourage research in universities and hospitals.

Security provisions under the May-Johnson bill were severe. The commission had authority to ban at the source any information it wished to be secret. Violation of any security regulations could result in a fine of \$100,000 and ten years in jail, while intentional transmission of information with intent to endanger U.S. interests carried a maximum penalty of \$300,000 and thirty years in jail.

However, it was not these powers that raised the most alarm among the

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<sup>20</sup> Ibid, 140.

<sup>21</sup> Ibid, 130.



movement scientists. Rather, the bill's omissions were of greatest concern. Since the war, the scientists had been focusing their discussions on international control and the avoidance of an arms race. Now that they were coming into the public arena, however, they faced a bill that not only failed to take into account the possibility of future international control agreements, but took an overtly hostile and militaristic tone. Physicist Howard J. Curtis of the Association of Oak Ridge Scientists explained: "The whole tone of the bill is such that if I were a scientist in some other county assuredly [I] would say to myself: 'Those fellows over in the States are getting ready to bomb us in a big way.' Any foreign country is going to read into it that we are an essentially aggressor nation."<sup>22</sup>

Furthermore, the scientists were dismayed that the bill dealt exclusively with military uses of atomic energy and failed to consider its possible peaceful applications. As Leo Szilard put it, one cannot have a reasonable discussion of machinery if some people think its function is the building of power plants and others think it is "to provide us with atomic bombs so that we can blast the hell out of Russia before Russia blasts the hell out of us."<sup>23</sup>

For scientists in the movement, the prospect of military control had implications beyond the practical. It is true that concerns over secrecy and the future direction of research weighed heavy on the scientists' minds. However, there were clear ideological issues at stake as well. Movement scientists were concerned that secrecy in research would not only impair scientific progress, but also permanently mar the democratic system. In their view, atomic energy was

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<sup>22</sup> Ibid, 168.

<sup>23</sup> Ibid, 160.

unlike most conventional weapons research in that it had unavoidable social and political implications. By relegating it entirely to the military sphere of influence and guarding it from the public eye, the electorate would become unable to make informed decisions while the government would have increasing justification for making crucial decisions in secret. These themes resonate throughout the debate on the May-Johnson bill: atomic bombs brought the ties between science and society, once obscure and easy to ignore, strongly to the fore in the minds of American scientists, and much of the American public.

The bill reached the movement scientists around October 9, when Leo Szilard brought copies back to Chicago's Met Lab. That evening, the Atomic Scientists of Chicago held a meeting to discuss the bill, and within the next several days it became a matter of concern for all of the existing scientist groups. A visitor at the Met Lab that evening, Herbert Anderson of Los Alamos expressed a common sentiment in his letter to Higginbotham: "I must confess, my confidence in our leaders Oppenheimer, Lawrence, Compton, and Fermi, all members of the Scientific Panel advising the Interim Committee and who enjoined us to have faith in them and not influence this legislation, is shaken. I believe that these worthy men were duped— that they never had a chance to see this bill."<sup>24</sup>

In fact, Anderson's rather charitable interpretation was not far off. Although the Scientific Panel officially endorsed the bill, member endorsement flagged as the debate went on. A popular rumor at the time was that General

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<sup>24</sup> Ibid, 140.

Groves had given the panel an oral briefing on the bill, omitting the possibility of military control. While this rumor has not been substantiated, it does not seem contradicted by the behavior of the panel members in the following weeks. On October 11 and in response to the dissent from Chicago, Oppenheimer, Fermi, and Lawrence signed a telegram intended for public release. This telegram expressed the opinion that some sort of domestic control was needed immediately so as not to delay work in the field, and furthermore that “the legislation as presented represents the fruits of well-informed and experienced consideration.”<sup>25</sup> Intended to quell debate until the advisory panel could meet the following week, this telegram was seen as an affront by many of the movement scientists, who were in the process of developing responses.

The telegram from the Interim Committee scientists highlighted the ongoing tension between high-level scientists who had been advising the government throughout the war and rank-and-file scientists, who composed most of the movement. Some were frustrated with the way wartime science had been managed and others were frustrated with their lack of representation regarding the decision to use the bomb, and all movement scientists were losing patience with the wide-spread willingness of their superiors to trust the good will of leaders in the military and the government. This trust, born out of a long working relationship on the part of high-level scientists, was foreign to their subordinates, to whom military influences appeared universally oppressive.

All of the individuals in the atomic scientists movement were deeply

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<sup>25</sup> Ibid, 143.

concerned about the content of the bill, but the reactions of individual groups depended largely on those group's experiences during the war and their relationships with the wartime laboratory leaders. For the organizations at Clinton Labs and in Chicago, the war experience had been one of tightly regimented security controls and compartmentalization of knowledge. These scientists emerged highly suspicious of military leadership and resentful of overreaching security procedures, convinced that military control of atomic energy would have unmitigated negative effects.

The situation at Los Alamos had been different, however. At the insistence of laboratory leader J. Robert Oppenheimer, all scientists at Los Alamos with clearance for scientific work were permitted to discuss their findings with one another. While information was still closely guarded from the outside world, within the bounds of the laboratory the Los Alamos scientists found a rich, collaborative environment. For this reason, the Los Alamos scientists were much more willing to listen to Oppenheimer when he assured them that, while the May-Johnson Bill wasn't perfect, he and the other Interim Committee scientists were working to improve it, and that public opposition from Los Alamos scientists would be counterproductive.<sup>26</sup> In short, those individuals who had worked under a strict regime of secret science were most opposed to its perpetuation under the May-Johnson bill.

By October 15, a Monday, several movement scientists were working out of an informal "headquarters" at the Wardman Park Hotel in Washington D.C. In

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<sup>26</sup> Ibid, 172.

the following week, Oppenheimer began wavering in his public support of the bill, stating before a congressional committee, "The Johnson bill, I don't know much about, but what I do know about it is that you could do almost anything under that bill, and a wise commission could operate with almost complete freedom under that bill. Whether it will or not, I don't know."<sup>27</sup> In the same spirit, Oppenheimer continued to defend the bill and its authors while denying any direct role in its creation. This position alarmed many movement scientists, who had assumed that Oppenheimer and the rest of the advisory panel had been their representatives in the bill's crafting.

Congressional hearings on the May-Johnson bill, closed May 9 after a single day's testimony from Secretary of War Patterson, General Groves, Vannevar Bush, and James Conant, were opened for another day due largely to protest from the scientists' groups. The renewed hearings were dominated by scientists affiliated with the groups, including Szilard, Anderson, and advisory panel member Compton, who made clear why he had not joined his colleagues in signing the telegram endorsing the bill. He bristled at the security provisions, lamenting that so little was written about the positive implications of atomic energy. Oppenheimer also testified that day, supporting the passage of the bill with an amendment assuring that scientific work would not be held up by the new committee, but again emphasizing the need for immediate passage to allow nuclear physicists to get back to work and to establish a groundwork from which international negotiations could progress.

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<sup>27</sup> Ibid.

A word must be said at this point about Oppenheimer, as he is a prominent and complex figure in this story. As director of Los Alamos and scientific adviser to the executive branch, Oppenheimer had a significant official voice in atomic energy policy from his appointment in 1943 to the scandal that ended his government work ten years later. He was often in agreement with the issues pushed forward by the atomic scientists' groups, was called to testify alongside movement scientists in these initial hearings, and later made a small contribution to the movement's book, *One World or None*. However, while Alice Kimball Smith regards him charitably as "a very helpful elder statesman" to the movement scientists, his actions and statements make it clear that even when he agreed with the movement's goals he disagreed strongly with its methods.<sup>28</sup> In addition to orchestrating the previously cited advisory panel telegram to quell dissent, he chastised the movement scientists for their distrust of the military in a congressional appearance, and continued to call and telegram Los Alamos attempting to quiet the angry scientists.<sup>29</sup> His concern for science and for peace made him an occasional ally, but his view of the role of scientists in society set him dramatically apart from the atomic scientists' movement itself. While he often appeared to be working for similar goals, it is not possible for us to consider him as much of a partner as Smith portrays him.

Arthur Compton had similar feelings with regard to the role of science in political affairs. Clearly of the opinion that scientists should speak rarely in the political sphere, he also recommended that if activist scientists did feel the need

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<sup>28</sup> Ibid, 155.

<sup>29</sup> Ibid.

to speak publicly on administrative or political aspects of the bill, statements should “be presented with the clear indication that they are the expressions of the group in their capacity as citizens” as opposed to as scientists.<sup>30</sup> Privately, Compton wrote of the activism to his brother in early October: “Some of our scientific boys helped to muddy the waters by insisting on airing their views with Congressmen.”<sup>31</sup> While these complaints criticize different facets of the scientists’ activity, his point in both cases is that the rank-and-file scientists have stepped beyond their authority as scientists. Like Oppenheimer, Compton resented these scientists’ demands to be involved in matters of policy, although he and the other advisory panel scientists did not seem to see any contradiction in their own invited contributions.

Regarding this distinction, Smith notes that while Compton’s insistence on a line “between those issues that scientists might legitimately try to influence at the early policy-making state and those upon which they should express themselves only in public debate” was problematic, the absence of such a line was equally so. Without a clear distinction between those matters gerund exclusively to “science” or “politics,” there was no way for the public “to maintain its respect for science if ‘scientific facts’ produced quite contrary conclusions.”<sup>32</sup> This moment in Smith is exceptional because it is one of the few points where she inserts analysis, particularly analysis critical of movement goals, into her predominantly narrative work. The struggle between “respect for science” and

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<sup>30</sup> Bernstein, 250.

<sup>31</sup> Ibid, 248.

<sup>32</sup> Smith, 181.

the ability for scientists to act with a social conscience is a vitally important one. However, she, like Compton, uses a model of the relationship between science and society that prevents understanding of what is at stake in this struggle.

Bruno Latour sees the realms we call science and politics as human-constructed categories, held as distinct by the “modern constitution.”<sup>33</sup> Using Latour's model, we can see this moment of struggle between Compton and the movement scientists as a rupture in the fabric of this modern constitution. Compton, defending the modern constitution, insists that there must be a line between science and politics. Smith, also modern in her thinking, worries that there must be a line, but can't see where to put it. The movement scientists, on the other hand, defy the possibility of a line. For a moment rejecting the modern mindset, they explain that, “having helped man to make this first step into this new world, they have the responsibility of warning and advising him”: the issue is not politics versus science, but rather responsibility and knowledge.<sup>34</sup> Moments like this one, common throughout this immediate post-war period, show the modern constitution under interrogation. While the bill's sponsors, May and Johnson, along with Compton, Oppenheimer, and many others, believed that scientists should attend to science while politicians attend to politics (with the exception of the rare, and officially appointed, science adviser), the atomic scientists' movement saw this strict division as outdated. They wished to replace it with a changed world-view, one in which scientists and politicians alike shared

<sup>33</sup> See Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter, (Cambridge, Harvard university's Press, 1991), in particular sections 2.2-2.8 on the creation of the modern constitution.

<sup>34</sup> Hill, Rabinowitch, and Simpson, “The Atomic Scientists Speak Up,” *Life*, XIX (October 29, 1945), 45.



responsibility for managing the boundary-crossing hybrid products of the new age.

With some urging from atomic scientists' movement groups, letters in opposition to the May-Johnson bill poured in to Congress from all over the country. On October 23, sixty individuals identifying themselves as scientists, educators, and other civic leaders sent a telegram protesting the broad powers of the administrator granted under the May-Johnson bill. On November 5, fifty San Diego scientists wrote their congressmen opposing the bill on the grounds that its security provisions threatened "independence of American thought and aspiration."<sup>35</sup> Meanwhile, supporters of the bill wrote an open letter to the President and Congress. Reflecting the ideological differences between the modern view that science has its place and the movement view that science and scientists can and sometimes must speak politically, the two hundred signatories of this bill identified themselves as "private citizens" from the California Institute of Technology, Mount Wilson, the Huntington Library, and the University of California at Los Angeles. While Compton's protests regarding the self-identification of scientists when speaking "as citizens" did not seem to much affect the movement scientists' writings at this time, it appears that he did impact the thinking of at least two hundred scientists in the Los Angeles area. Oppenheimer was among the those who signed this letter.<sup>36</sup>

Pressure on legislators continued through November, with movement scientists and their supporters paying calls on representatives, sending letters

<sup>35</sup> Quoted in Smith, 183.

<sup>36</sup> *ibid.*

and telegrams, making phone calls and publishing newspaper articles. During the week of October 22 the House Military Affairs Committee introduced a number of changes restricting the scope of the new committee and toning down the security provisions. In spite of these changes, scientific opposition along with a growing popular concern continued. In early November the Truman administration began withdrawing support for the bill, and by December it was so strongly opposed in the Senate that it was not even put up for discussion. In the months that followed, the May-Johnson bill served the purpose of a yardstick against which other domestic control plans could be measured. However, by the end of 1945 it seemed clear that the movement scientists had won their first battle: they had defeated the May-Johnson bill.

#### THE NEXT STEP: THE McMAHON ACT

Although much of their membership remained primarily concerned with issues of international control, the next political challenge that faced the movement groups was another domestic control bill. Drafted by a young assistant to the counsel for the Senate Special Committee on Atomic Energy (SCAE), under the leadership of Senator Brian McMahon (D.-Conn.), this bill showed clearly the hand of the Atomic Scientists of Chicago and other movement groups. The SCAE had begun open hearings on November 27, and its primary witnesses were scientists.

The atomic scientists' movement groups took an optimistic view of the educability of the senators, shedding light once more on their thoroughly

networked view of politics and science. From the movement scientists' view, a program of "physics for senators" teaching the rudiments of atomic science would be sufficient to create statesmen competent to craft nuclear policy. Many in government were not so charitable toward the scientists, however-- even after months in Washington, they were often told that they were not competent to talk about policy issues because they were scientists, not senators.

The McMahon bill satisfactorily addressed all of the scientists' objections to the May-Johnson bill. It provided a full-time salaried civilian commission to be appointed by and responsible to the president. It made the commission the sole producer and distributor of fissionable materials, and the use of devices or processes controlled by common licensing, preventing private monopolies in the hands of industry that might slow or prevent research.

The new bill included milder security provisions than May-Johnson: it did not give the committee powers to issue new regulations, and while the commission would control the release of new scientific information in the field, it was also responsible for the dissemination of that information. Moreover, the penalties for violations of these policies did not exceed those already laid out in the Espionage Act. The new bill mandated quarterly reports, which would serve to preserve openness and accountability from the new commission.

Most valuable to the movement scientists was the tone of the bill toward peaceful applications of atomic energy and the possibility for international control. The bill explicitly stated that later international agreements would supersede any provisions of the bill, and made equal mention of peaceful and

military uses of atomic energy. The scientists were also encouraged by the promise for a balance between basic and applied research, and impartial support for government or independent laboratories. Overall, movement scientists found it very satisfactory, and, while making note of a few changes they would like to see, prepared to give the bill their full support.<sup>37</sup>

Hearings on the McMahon bill in the SCAE began on January 22, and testimony was largely favorable until Secretary of the Navy James Forrestal's statement. Secretary Forrestal was of the opinion the the bill inadequately provided for discourse between the commission and the military as it did not explicitly provide for a liaison to that effect. This issue, addressed in the Federation of Atomic Scientists on January 28, was to become the primary point of contention in the debate over the McMahon bill.

The Federation of Atomic Scientists sent as its witness a middle-aged biochemist named Harrison Davies, who began by declaring that the bill before the committee had "the strong support not only of more than fifteen hundred Manhattan Project scientists and engineers, but of thousands of other scientists."<sup>38</sup> He went on to establish the movement's response to the demands for a military liaison: any semblance of military control would be contrary to American traditions of civilian government, and while communications with the military were clearly vital, a subject so important to foreign policy must be

<sup>37</sup> *ibid*, 273-275; Jessica Wang, *American Scientists in an Age of Anxiety: Scientists, Anticommunism, and the Cold War* (Chapel Hill: University of North Carolina Press, 1999), 18. Text of the bill is reproduced in Richard G. Hewlett and Oscar E. Anderson Jr., *The New World, 1939/1946*. Vol. 1 of *A History of the United States Atomic Energy Commission*. (Washington, D.C.: U.S. Atomic Energy Commission, 1972). App. 1, 714-22.

<sup>38</sup> quoted in Smith, 369.

entirely free of military governance.

The McMahon bill continued to enjoy smooth sailing. On January 31 President Truman sent a letter to Chairman McMahon supporting the civilian commission and other aspects of the bill. This letter made the front page of newspapers nationwide, and the Federation was quick to send out a press release endorsing the President's views. Secretary Forrestal's testimony was the only real opposition heard; on February 14 even Secretary of War Patterson testified in favor of civilian control, though clearly lacking enthusiasm.

The bill hit rough waters only two days after Patterson's testimony, not from congressional actions but from an entirely external source. With the background of worsening relations with the Soviets in the light of an aggressive speech by Stalin on February 9, on February 16 news broke that a spy ring had been uncovered in Canada. Twenty-two people had been arrested in Ottawa and were charged with passing information, including information about the bomb, to the Soviet Union.<sup>39</sup> In early March, Stalin refused to pull troops out of Iran according to schedule, and on March 5 Churchill gave his "Iron Curtain" speech about the threat of growing Soviet dominance in eastern Europe and the need for relentless U.S. opposition. The Cold War was fast becoming reality, and the changing international climate shifted the ground on which the McMahon bill had been gaining support. Almost overnight, letters to Congress in support of the bill dwindled to a trickle.<sup>40</sup>

The tide seemed to be rapidly turning against the movement scientists. On

<sup>39</sup> Wang, *Scientists*, 20-21.

<sup>40</sup> Smith, 375.

the twenty-second of February they got news that physicist Niels Bohr had been denied a visa. They also received word of a statement released by General Groves stating that “from disclosures in Senate committee hearings and loose talk among irresponsible scientists more information about the atomic bomb had leaked out in the last four weeks than in the entire course of the war.”<sup>41</sup> It was clear that movement opponents were attempting to use the fears begun by the Canadian scare against the proponents of the McMahon bill.

In this first substantial mustering of public opposition against the movement and its goals, we can see the line between science and politics become a little more solid in the popular consciousness. While the atomic bomb was a new presence on the world stage, the idea of traitors and spies, duplicitous and loyal to another nation, was an old one. With spying prominent in the public eye, the notion that scientists capable of building the atomic bomb had political opinions could be made to seem threatening: if they could be politically persuaded to serve another nation, America’s atomic knowledge would escape. With such threats looming, the modern constitution’s divide between scientific and political work is appealing and protective.

On March 12, senator Arthur Vandenberg submitted an amendment creating a military liaison board and providing that “the Commission shall advise and consult with the Committee on all atomic energy matters which the Committee deems to relate to the common defense and security. The Committee shall have full opportunity to acquaint itself with all matters before the

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<sup>41</sup> *ibid.*

Commission.”<sup>42</sup> The movement groups responded with two primary points, established earlier in Davies' testimony before the committee. First, that military control would run counter to U.S. tradition and the U.S. constitution, and second, that because they would stifle scientific progress, heightened levels of security would be detrimental to national security.

On March 19, Thorfin Hogness, a University of Chicago chemist, went to Washington D.C. to “see what he could do about the Vandenberg amendment.”<sup>43</sup> He was in frequent contact with McMahon and Condon, and soon managed a meeting with then Chief of Staff General Eisenhower. The general was enthusiastic about limiting military power with regard to atomic energy, and with his support Hogness and Vandenberg were able to re-word Vandenberg's amendment in a manner more acceptable to the scientists' movement.

Although the final draft was not officially approved by any movement groups, some of whom felt Hogness could have gained more concessions had he asked for them, the new form was much more satisfactory than the old and was not actively opposed. The new amendment made the liaison committee responsible to the secretary of war and the secretary of the navy, and restricted its concern to military applications of atomic energy. Also, the troublesome wording granting the committee “opportunity to acquaint itself with all matters before the commission” was replaced with the statement that they should remain “fully informed.” The modified amendment was accepted by the committee April 2, with Senator McMahon abstaining.

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<sup>42</sup> Ibid, 388-389.

<sup>43</sup> Ibid, 403.

The House Committee continued to make changes with an eye toward heightened security concerns throughout the month of April. The information section, previously called "Dissemination of Information," was retitled "Control of Information," and where before all atomic information had been assumed open until declared restricted by the Commission, the April changes declared it to be the other way around. Furthermore, fines and penalties for willful transmission of information were doubled from the original draft, to \$20,000, ten years imprisonment, or both. McMahon reported the amended bill to the Senate on April 19, and Federation leaders decided to ignore their objections and push the bill through as quickly as they could, considering it a compromise solution. After a long delay, the bill was passed by voice vote in the Senate in only two hours on Saturday, June 1.

The bill went to the House Military Affairs Committee on June 10, and after two days of encouraging open hearings the Committee went into closed executive session. Rumors leaked out of crippling amendments being added during this session, among them the inclusion of two military men on the commission and presidential authorization for the manufacturing production, or acquisition of "any equipment or device utilizing fissionable material or atomic energy as a military weapon"<sup>44</sup> The atomic scientists' movement groups increased their level of activity, passing resolutions and calling on their supporters to send telegrams and letters urging passage of the Senate version of the bill.

The bill went from the Military Affairs Committee to the Rules Committee

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<sup>44</sup> Ibid, 417.



on July 10, and while it was there Representative J. Parnell Thomas, though not a member of the committee, attempted to stall it by calling attention to alleged subversive activities being investigated by the House Un-American Activities Committee at Oak Ridge. While this diversion caused a brief but intense alarm among congressmen and scientists alike, it was quickly dismissed as political maneuvering and didn't ultimately hold up the progress of the bill, which went to the house floor on July 16.

Before the House, more anti-American allegations were hurled toward the bill's scientist supporters. In response to numerous attacks, movement groups were almost constantly sending out new calls for action, supporting the passage of the Senate version and opposing any number of potential changes. On July 20, the bill passed the House with seventy-one amendments by a vote of 265 to 79. It then went to a Senate-House committee, where the two versions were to be reconciled.

As soon as the names of the joint committee members were made public, movement scientists initiated a campaign of telegrams, visits, and phone calls encouraging these congressmen to oppose military influence and overly severe security provisions. The result of these deliberations was not entirely in the scientists' favor. Included in the final version was the death penalty as punishment for intentional information leaks and wide FBI powers, but excluded were military participation and the House version of patent management. On July 26, the modified bill passed both houses by voice vote. President Truman

signed it into law on August 1.<sup>45</sup>

Understandably, movement scientists were somewhat disappointed with this outcome. However, they took the bill's passage as an overall success and extended thanks to the many individuals, including Senators McMahon and Vandenberg, who championed the bill. While it contained several troublesome sections, the bill as passed did establish civilian control, and also retained the possibility of international compromises.

#### GETTING DOWN TO BUSINESS: THE DRIVE FOR INTERNATIONAL CONTROL

Perhaps the reason that the atomic scientists' movement is often viewed indifferently or even rather critically in retrospect in spite of its first pair of victories was that the great passion of the participants was for international control. While domestic control legislation had to be managed so as not to harm potential for international negotiations, the goal of the movement scientists was not nearly so modest: in short, they intended to save the world.

Unlike national policy, for which there were established channels of influence, there was no clear mechanism for effecting political or scientific change worldwide. After months of high-paced activism, politics on the international scale soon became months and then years of waiting. Furthermore, unlike the dramatic turns taken in the legislative battles, the international negotiations resulted not in a successful or rejected bill but instead dwindled into a U.N. committee deadlock by the spring of 1948. However, all this is not to say that

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<sup>45</sup> Ibid, 428-431.

movement scientists did not have a notable impact on the progress that was made toward international control of atomic energy.

In some sense, the scientists' movement was concerned with international control in all of its actions: many objections to the May-Johnson bill as well as modifications to the McMahon act were based upon projected negative consequences for international negotiations. As early as November of 1945 movement scientists in Washington were working on detailed studies regarding the technical feasibility of inspection at various stages of weapons production. In January of 1946 these studies were taken over by a committee appointed by the War Department and including several individuals involved in the scientists' movement, including Philip Morrison and R. F. Bacher of Los Alamos and headed by Manson Benedict, a gaseous diffusion specialist from Oak Ridge.<sup>46</sup> Because these appointees held convictions in support of comprehensive international control of atomic energy, movement scientists were rightly confident that their work would be well taken care of.

Like the themes underlying civilian control domestically, the atomic scientists' movement for international control hinged on the assertion that the atomic bomb created a world somehow fundamentally different from the world that had come before. Maintaining its position that the new world position put scientists in a new role, with regard to international control they made a further point: the political structures of the world must also be realigned. As Arthur Compton wrote in the introduction to the book *One World or None*, "We now

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<sup>46</sup> Ibid, 260.

have before us the clear choice between adjusting the pattern of our society on a world basis so that wars cannot come again, or of following the outworn tradition of self-defense, which if carried through to its logical conclusion must result in catastrophic conflict.”<sup>47</sup> Further tearing at the modern constitution, movement scientists in this moment make the claim that the atomic bomb, a scientific achievement, has the power to force down political boundaries lest war destroy them. Furthermore, these scientists asserted, they were the ones to bring the message of political reordering. By this point in the scientists' campaign, they were far removed from the confines of thinking along the bounds of the modern constitution.

At about the same time that the War Department took over the movement's inspection studies, the State Department appointed a committee under Undersecretary of State Dean Acheson to draft a control plan. This committee in turn formed an advisory board headed by Tennessee Valley Authority head David Lilienthal. J. R. Oppenheimer was the board's chief scientist. As they were thoroughly engaged in domestic control issues at this time, the movement scientists were grateful that satisfactory action was being taken by the government. Following a familiar pattern established by the atomic scientists' movement work in the Senate, Oppenheimer opened the State Department group's activities with a two-day tutorial on atomic theory and nuclear physics, which was followed by a tour of Manhattan project facilities.<sup>48</sup>

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<sup>47</sup> Arthur H. Compton, "Introduction," *One World or None*, eds Dexter Masters and Katherine Way (McGraw-Hill, 1946) V.

<sup>48</sup> Gregg Herken, *Brotherhood of the Bomb*, (New York: Henry Holt and Company, 2002) 163.

Some scientists proposed a full U.S. moratorium on the production of bombs and fissionable materials in order to establish good faith in international negotiations.<sup>49</sup> Others suggested that a control regime ought to include a temporary ban on nuclear power to avoid confusion in inspections. In early 1946, many scientists and diplomats, whether or not they were involved with the atomic scientists' movement, were willing to take risks in order to protect against an international arms race and establish grounds for nuclear peace.<sup>50</sup>

In addition to the Benedict and Lilienthal committees, several unofficial groups were working on international control plans with the aid of scientists' movement advisers. The Carnegie Endowment for International Peace was spearheading a project led by political scientists James Shotwell and the Committee to Study the Organization of the Peace, which was the research branch for the American Association of the United Nations. Prior to the establishment of the Carnegie group, Shotwell organized meetings with movement leaders including Urey and Szilard in October and November of 1945. In January of 1946, the Carnegie Endowment sponsored a conference in conjunction with the American Physical Society and the Federation of American Scientists council meetings; a number of movement scientists, including Manson Benedict of the inspection study, were in attendance. While a regular correspondence relationship was maintained between the Carnegie group and the movement scientists at Columbia University's SAM Lab, the report produced by the Carnegie

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<sup>49</sup> *New York Times*, February 16, 1946, p. 12 (dated February 13, 1946.) Signers of the letter were L.C. Dunn, Irwin Edman, A. P. Evans, Selig Hecht, P. C. Jessup, R.M. McIver, Edgar Miller, F.C. Mills, George B. Pegram, I. I. Rabi, Jan Schilt, and C. S. Shoup.

<sup>50</sup> Smith, 450.

committee in June of 1946 was considered too conservative by the scientists' movement groups.

A second committee working on international control issues was sponsored by Professor Quincy Wright, an international law expert at the University of Chicago. Wright was advised by the Atomic Scientists of Chicago, one of the most active scientist groups in this period. This committee produced a "Draft for a Convention on Atomic Energy" in April, 1946 providing for a U.N. control authority with branches for political planning, inspection, and administration. The administration branch would have authority to own and operate mining and production facilities, as well as to sponsor research. This plan also suggested a moratorium on the large-scale production of fissionable materials, to be reviewed after five years and, if appropriate, ended for the development of industrial atomic power under the supervision of the commission. Enforcement under this plan would depend upon an international court of law.

Both of these reports were soon overshadowed by the proposal from the Lilienthal advisory board, which had swiftly come under the control of Oppenheimer. While Oppenheimer had before openly criticized the methods of the atomic scientists' movement, on the issue of international control they and he were in agreement. In fact, Oppenheimer had first outlined the plan he would promote to the advisory board at an Association of Los Alamos Scientists' Meeting, where his plans to create "a world that is united, and a world in which war will not occur" were met with acclaim. Oppenheimer came to dominate the

advisory board through his intellect and charisma. While the advisory board's initial intention had been to present a variety of recommendations to the committee, Oppenheimer persuaded them to press for a single plan-- his.

Oppenheimer's plan placed all control of atomic energy, from mining operations to bomb manufacture and power plants, with an international Atomic Development Authority. This plan also hinged on the ability to "denature" fissionable materials through the addition of contaminants so that they would be useful for civilian power production but useless in military applications. This assertion was based on rather shaky data, and was skeptically regarded by many scientists, many of whom worried that the "re-naturing" process would be too simple to carry out.<sup>51</sup>

Because of widespread worry that denaturing would not be an effective mechanism for control, General Groves appointed a new committee, including Oppenheimer, to study the subject. This committee found that plants for re-naturing would have to be specifically built, and that it would take years to process enough material to create weapons. The committee concluded with a caution: that without "reasonable assurance that such plants do not exist it would be unwise to rely on denaturing to insure an interval of as much as a year" but added that, within the framework of the State Department proposal, would be a helpful tool.<sup>52</sup> In spite of this concern, the report was widely acclaimed by movement scientists and highly promoted in movement public relations campaigns. As Higginbotham later explained: "For the first time since the end of

<sup>51</sup> Herken, 163-4.

<sup>52</sup> Quoted in Smith, 463.

the war, we began to feel hopeful. We clasped the new bible in our hands and went out to ring doorbells.”<sup>53</sup>

One point particularly noteworthy within the context of this study is the emphasis in the Lilienthal plan, promoted by the movement scientists as well as Oppenheimer and several other establishment figures, for a regulatory agency also active in research. This provision was motivated by two factors: first, concern that active research was necessary to keep up with cutting-edge science, and second, acknowledgment that the project would require excellent scientists who would want to pursue scientific questions in addition to their service-oriented work.<sup>54</sup> Under this vision, scientists would have been required to play the dual-role of working scientist and public servant. This plan would have required many scientists to traverse the previously invisible networks between the modern spheres of science and society under the auspices of a government institution. As these scientists would have been simultaneously doing science and performing regulatory duties, they cannot be partitioned into purified categories: this plan would have made their hybrid status explicit.

The final advisory panel report, now known as the Acheson-Lilienthal Report, was presented to Secretary of State James F. Byrnes on March 17 with the full support of the Acheson committee. They explained: “We lay the report before you as the Board has submitted it to us 'not as a final plan, but as a place to begin, a foundation on which to build.' In our opinion it furnishes the most constructive analysis of the question of international control we have seen and a definitely

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<sup>53</sup> Smith, 461.

<sup>54</sup> Smith, 457.



hopeful approach to a solution of the entire problem.”<sup>55</sup> The report was leaked to the press on May 21, and officially released on May 28.

In spite of both the committee's and the movement's hope for the Acheson-Lilienthal report, its potential was almost immediately quenched by White House planning. The day before the report was delivered to the State Department, Byrnes and Truman had selected the elderly financier Bernard Baruch to present the plan to the United Nations. Upon hearing of Baruch's appointment, Oppenheimer told ALAS president Higginbotham, “We're lost,” while Higginbotham wrote in his journal, “When I read this news last night, I was quite sick.”<sup>56</sup> Neither the FAS nor any other movement group made any public comment, but movement scientists were concerned by the fact that Baruch was hostile to the publication of the Acheson-Lilienthal Report—which the movement groups had greatly anticipated and were striving to disseminate as widely as possible. This clear difference of opinion was troubling to the scientists' movement, which had viewed its rallying of public support as the best way to promote a mutual cause. While it was unclear at this moment exactly what Baruch's plans for the proposal was, there are suggestions that he never held much hope for it. Lilienthal wrote of Baruch and his advisers in his journal: “They talk about preparing the American people for a refusal by Russia.”<sup>57</sup>

Also troubling to the movement were the advisers Baruch selected: banking associates derided even by Vannevar Bush as “Wall-Streeters.” With the

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<sup>55</sup> Smith, 455.

<sup>56</sup> both quotes from Herken, 165.

<sup>57</sup> Quoted in Heken, 165.

urging of the Association of New York Scientists, a science adviser was sought from among those who had opposed military control and been working on issues of international control: the California Institute of Technology's Richard C. Tolman took this position in mid-May. Tolman had been closely affiliated with the Manhattan Project's administration but nonetheless had the trust of many movement scientists. His selection of Oppenheimer, Bacher, Compton, Thomas, Urey, Morrison, and Weisskopf, particularly the latter three, confirmed to the movement groups that Tolman was interested in taking their views into account. However, while a great many meetings took place between Baruch and his scientists' movement acquaintances, notably Albert Cahn of the Met Lab, it became clear that the discrepancies between Baruch's views and the Acheson-Lilienthal report were significant.<sup>58</sup>

Where previously they had involved themselves closely and vocally with Washington politics, in this case the movement scientists restrained themselves, lobbying the public to express support for the plan but otherwise leaving the political maneuvering to the better-connected Oppenheimer. Sadly, it soon became clear that even Oppenheimer's connections and charm were not sufficient to prevent Baruch from altering the provisions and tone of the proposal. By the time Baruch went to the U.N. the plan he presented was more specific than before, with a definite target: the Joint Chiefs of Staff observed that "the bases where Baruch was proposing to stockpile atomic bombs to use against would-be aggressors were 'all too obviously pointed at the U.S.S.R.'"<sup>59</sup> While the atomic

<sup>58</sup> Smith, 467-468.

<sup>59</sup> Herken, 165.

scientists and others with hopes for an international agreement had tried to phrase the proposal in welcoming and neutral language in order to draw all nations into a lasting peace, Baruch's proposal presumed that the arms race, and the Cold War, had already begun, as it had in the minds of many in Washington. This targeted hostility would be reciprocated by the Soviet delegate at the U.N.

On June 19, five days after Baruch introduced his position, the Soviet delegate Andrei Gromyko offered a vague counterproposal: a pledge by participating nations that they would not use, produce, stockpile, or maintain any nuclear weapons, and that any existing stockpiles would be destroyed within three months. By June 25 lines had been drawn at the U.N.: nine of the twelve nations on the UNAEC approved the Baruch plan, Russia and Poland opposed it, favoring the Russian plan, and Holland was undecided. Gromyko's plan remained undefined, but the main point of contention was the issue of abolishing the security council veto on issues of nuclear enforcement. Baruch placed this issue as a top priority, declaring that the plan could not move be passed without it, and Gromyko was equally adamant that such a step was impossible. As mentioned in the previous discussion of the McMahon act, U.S.-Soviet tensions were heightening, and UNAEC negotiations certainly reflected this dynamic.

Leaving this issue aside, a scientific and technical subcommittee was assembled by the second UNAEC committee; the U.S. representatives were Tolman, Bacher, and Oppenheimer. While these men had been administrators of the Manhattan Project and were not members of the movement, they were all firm supporters of the Acheson-Lilienthal act and had had a great deal of

communication with movement groups. Meetings of this subcommittee began on July 19 and drew heavily on the unclassified portions of the Benedict Committee's findings.

Outside of the U.N., U.S. actions did not seem to reflect the cooperative tone they were trying to establish within the UNAEC. On July 1, the U.S. began nuclear tests at Bikini in what would become a minor public relations disaster for the movement. The first bomb dropped at Bikini did not do the "anticipated damage" to the fleet upon which it was dropped, only two of the 73 ships were sunk on impact, and press coverage implied that atomic weapons were not as bad as the movement had claimed. Over the next several days the damage reports rose, but it was clear that the initial impression stuck in the public mind. To many, it appeared that the nuclear bomb was "nothing more radical than the refinement of TNT over Chinese gunpowder."<sup>60</sup>

Within the government, the results of the Bikini test were polarizing. The President's commission concluded from the event that "if there is to be any security or safety in the world war must be eliminated," while the Joint Chiefs of Staff report urged large-scale nuclear research and development to promote national safety. These two views would become the points around which scientific and national opinion would split in the months and years to come.

Over the summer, the movement groups' work for international control focused mainly on communication with Tolman with regard to freedom of information within the technical committee. The movement scientists held the

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<sup>60</sup> Smith, 478.

belief that the diverse Lilienthal board's unanimous decision was the result of their sharing the same facts about atomic energy. In the interests of promoting such agreement among the technical committee, the movement groups were intensely concerned that the foreign members be given sufficient information to make the proposal seem equally obvious. As was typical to the movement, this concern was based on the idea that with accurate knowledge, provided by scientists, all individuals were capable of making intelligent decisions about atomic bombs. At a September 22-23 council meeting Oppenheimer assured the FAS council that up to this point the negotiations hadn't been affected by a lack of information, but qualified that what was currently available was not sufficient to fully draft a treaty.

On September 26, the multinational scientific and technical committee issued an optimistic report which concluded that there was no significant technical barrier to control. The report declared that one of the best assurances of international cooperation was a strong and active community of scientists and the free exchange of scientific information, which would keep all countries aware of scientific progress and thus prevent important developments from being pursued in secret. They concluded their report by addressing quite specifically "the question posed by Committee 2, 'whether effective control of atomic energy is possible'" and concluded that, on a purely scientific and technical level, it was. "Whether or not it is politically feasible, is not discussed or implied in this report, nor is there any recommendation of the particular system or systems by which

effective control can be achieved.”<sup>61</sup> While its discussions may have been wide-ranging, this committee of scientists was careful to fit its report into the framework of authority being established at the U.N.

Bernard Baruch later said that the scientific and technical committee's report was the “first and almost the last time the Soviet delegation had agreed with the United States.”<sup>62</sup> While the movement was not directly involved in this pinnacle of pre-cold war cooperation, some of its members were. Furthermore, the contributions made by the feasibility studies performed a year earlier, and the continued pressure for international control, can be largely attributed to the efforts of the group as a whole.

Following the unified statement from the scientific and technical committee, negotiations at the U.N. fell into a stalemate, and the movement scientists were unable to contribute. While they did not publicly voice their discouragement for fear of further harming the chance of success at the U.N., by March 5, 1947, the groups had all but given up. Though they still distributed and promoted public support for the Acheson-Lilienthal report, they had little hope of its passage. In the spring of 1948, a formal deadlock was declared and the committee dissolved. No comprehensive system of international control was ever established. As the movement scientists had predicted, a massive arms race followed.

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<sup>61</sup> Quoted in Smith, 488.

<sup>62</sup> Quoted in Smith, 489.

## Chapter 2 The Atomic Scientists' Movement: Message and Methods

A survey of materials from the atomic scientists' movement reveals quite a lot about its goals, its methods, and its message. When encountered all at once, the letters, articles, pamphlets, films, and the book produced by the movement initially read as repetitive and monotonous: three years spent sounding the same drum. By looking at the context of these documents we can begin to understand movement origins and goals. They were created to convey the message that although before WWII genocide could only be carried out by a massive network of killers, now a nation could be wiped out in minutes by fleet of airplanes carrying bombs.

The atomic scientists' movement believed in the ability of the American people to synthesize scientific knowledge and in the power of scientific knowledge to spur good policies, and furthermore, believed that only an understanding of the scientific basis of atomic energy could bring about appropriate treatment of the new weapons. More than anything, the movement believed that the production and use of the atomic bombs created a moment in which it was impossible to draw a line between science and politics or between laws of nature and laws of society. Atomic bombs disrupted the fabric of the modern constitution and asserted in its place a highly networked world where scientists were responsible for the political and moral consequences of their work and citizens were called upon to learn about the nature of the atom.

The atomic scientists' movement promoted its message through many media. They published articles in newspapers and magazines. They coordinated radio broadcasts and sent speakers across the country. They sent thousands of direct mailings to individuals and local organizations to raise awareness and to raise funds. They aided in the production of a feature film, *The Beginning or the End*, as well as a number of educational animated shorts, including *One World or None* and *How to Live with the Atom*. The Federation of Atomic Scientists assembled a book, also called *One World or None*, and member groups of the National Committee for Atomic Information sponsored conferences on atomic education throughout the country. Movement scientists also spent many hours chatting with senators and political advisers, working to get their voices heard by lawmakers.

Nearly all of the work done by the atomic scientists' movement was directed toward the general public. Its members did not seem to be interested in recruiting more scientists, although internal networking did bring their movement precipitous growth in its first year. At its core, the movement was founded on the belief that basic information about atomic energy was necessary for survival in the nuclear world. It did not claim that nuclear physics was simple, and many (though not all) of its publications go beyond basic propaganda: *One World or None* devotes several pages to the basic physics of nuclear reactions, and several more to the technical potential for power production. However, all of these things were explained at a level that did not require technical training. In the world as seen by the movement, training might



be required to *perform* science, but restricting *understanding* to the experts was no longer serving the interests of humanity.

This worldview fits securely within Bruno Latour's description of the modern, and amodern, world in which we live. In his 1991 book, *We Have Never Been Modern*, Latour calls our attention to 1989, "The Year of Miracles." For Latour, 1989 designates a moment when the dissolution of the modern constitution became readily apparent. With the fall of the Berlin Wall and the end of the Cold War, the world saw a triumph of the liberal governments of the west over the oppression found in the U.S.S.R., although that oppression sprang out of the intention to abolish "man's exploitation of man". In the same year, the first world conference on the state of the planet was held, revealing that many of the capitalist policies of the western democracies had been wreaking unprecedented destruction on the planet, although those policies had been intended to bring humanity unlimited plenty. "After seeing the best of intentions go doubly awry, we moderns from the Western world seem to have lost some of our self-confidence," Latour reflects. "Should we *not* have tried to put an end to man's exploitation of man? Should we *not* have tried to become nature's masters and owners? Our noblest virtues were enlisted in the service of these twin missions, one in the political arena and the other in the domain of science and technology."<sup>63</sup> In Latour's vision, 1989 represents a moment when the modern constitution was clearly in crisis, when it was impossible to understand the world within the context of fully divided spheres of science and society.

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<sup>63</sup> Latour, 9.

The other end of the Cold War also represents such a moment. The catalyst was the atomic bomb, and the disruption was similar: for those in the scientists' movement at least, this was a time where the world as structured by the modern constitution no longer made sense. Latour's essay depends on terms such as "recently" to describe the transition between a "then," when the modern constitution was an effective model for describing the world, and "now," when it is inadequate, failing to account for the proliferation of "hybrids," that cross the boundaries between political and technical knowledge. In this chapter, I will examine the texts left behind by the scientists' movement to find in them the common themes of introducing the world to a new framework, placing their technical knowledge in the hands of non-experts, and encouraging action under the new world model.

#### A CAUSE IN ITSELF: THE PUBLIC INFORMATION CAMPAIGN

Alongside the legislative and policy-oriented activities of the atomic scientists' movement was a continual focus on the need for immediate and extensive public education. While the creation of an informed public was a powerful political tool for the movement's two congressional episodes, it was perceived as more than a political necessity: for many people involved with the movement, public education was a primary goal. As Einstein explained in a 1946 *New York Times Magazine* article, anyone "if told a few facts [could] understand that this bomb and the danger of war is a very real thing, and not something far

away.” “To the village square we must carry the facts of atomic energy,” he wrote. “From there must come America's voice.”<sup>64</sup>

In November 1945 the Federation of Atomic Scientists joined with eleven civilian groups to organize the National Committee on Atomic Information (NCAI), which became the Federation's principle educating agent. Through this committee, it used the information-dispersal apparatus of its member organizations to promote its message, sending speakers and newsletters to church groups, labor unions, and the League of Women Voters. It published booklets such as the tri-fold leaflet *Education for Survival*, of which thirty thousand copies had been sold by June 1946.<sup>65</sup>

*Education for Survival* was directed at organizations and individuals, telling them what they could do to “help build world-wide freedom from fear” and “to make war obsolete before the atomic bomb makes man obsolete.” This pamphlet begins by setting out the three points which formed the backbone of all movement activities: “(1) *There can be no secret.* (2) *There can be no defense.* (3) *There must be world control.*” It encouraged groups to devote meeting time to speakers or discussions of atomic energy, to encourage radio stations to broadcast announcements, features, and discussions, and to work with newspapers, libraries, and local merchants to spread information and awareness of the atomic bomb. The leaflet also offered tips for sponsoring and directing a community forum devoted to the subject of atomic energy. Appropriate to the National Committee for Atomic Information's purpose as an educational organization (and

<sup>64</sup> Quoted in Wang, “Scientists,” 323 and 330.

<sup>65</sup> Smith, 324.

its tax-exempt status), *Education for Survival* did not pursue an explicit policy agenda, but rather encouraged readers to write to Senator McMahon for “committee hearings and copies of bills” and to “Let your congressmen know that you expect them to find a way to banish from the world both the causes and the weapons of war, regardless of how many precedents and prejudices must be set aside.” Finally, it offered a list of books and articles to read, including a number of materials that could be ordered from the NCAI for five to fifty cents apiece or at discounted bulk rates.<sup>66</sup>

The NCAI functioned primarily as a producer and distributor of nuclear education materials such as *Education for Survival*. While the sheer volume of material distributed is impressive, the group's impact can also be observed in activities sponsored by member groups: the Young People's Division of the Congregational Church re-enacted the hearings of the Senate Special Committee on Atomic Energy at a summer conference with three hundred delegates. “Atomic Information” was the theme for the American Association of University Women's annual dinner. Civilian and international control were the first items on the two-year agenda of the League of Women Voters.<sup>67</sup>

The scientists produced two newsletters: the *Bulletin of the Atomic Scientists*, first published in December 1945 as the mouthpiece of the Atomic Scientists of Chicago, and *Atomic Information*, produced by the NCAI for use by

<sup>66</sup> Leaflet, “Education for Survival,” item PMRH 48/45, Monsignor Reynold Hillenbrand: Printed Material (PMRH), University of Notre Dame Archives, Hesburgh Library, Notre Dame, Indiana.

<sup>67</sup> Smith, 325. Although Smith frequently mentions that the NCAI worked with labor, youth, church, and women's groups, the examples she offers (and I therefore mention) are primarily women's groups. I believe that this emphasis simply reflects the fact that there were many social action groups for women in this period rather than a special effort on the part of the NCAI to seek out such groups.

the organization's many affiliated groups. The *Bulletin*, edited by Eugene Rabinowitch, was intended for scientists as well as a lay audience. This periodical was filled with articles about atomic science in politics and always included an editorial promoting the goals of the movement. By the end of its first year, the *Bulletin* had a circulation of about sixteen thousand.<sup>68</sup> *Atomic Information* contained bibliographies, discussion guides, lists of articles, articles of popular interest, and cartoons. It was similarly successful, and in early April 1946 it had a circulation of ten thousand.<sup>69</sup> Clearly, in its first year, the scientists' movement was a powerful force in the province of atomic education.

#### *One World or None*

The scientists' book *One World or None*, published March 18, 1946, was conceived and edited by the Met Lab's Katharine Way and her friend Dexter Masters of McGraw-Hill. It was priced at a dollar per paperback copy and sold nearly one hundred thousand copies.<sup>70</sup> The list of contributors was itself impressive, among them Einstein, Bohr, Oppenheimer, and Wigner: not only a roster of the protest movement but of mid-century physics itself.

The book was a series of teaching essays, written by some of the foremost physicists of the time using metaphor and analogy to explain the rudiments of atomic physics alongside promoting political and social goals for the management of nuclear science. The atomic scientists' movement was grounded in educational

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<sup>68</sup> Ibid, 296.

<sup>69</sup> Ibid, 324.

<sup>70</sup> Ibid, 289-90.

goals and *One World or None* provided the ideal platform for its message. Unlike radio spots or magazine editorials, in the book its supporters were able to thoroughly contextualize their arguments. While some of the movement's other efforts may have held a larger audience, only in the book was it able to bring its methods fully into concert with its core principles.

Phillip Morrison, who had worked on the bomb at Los Alamos and Chicago, was one of the first Americans to see the ruins of Hiroshima. For *One World or None*, however, he spends only a few pages on Japan. The rest of his essay, "If the Bomb Gets Out of Hand," is devoted to the projected impact of a nuclear blast in New York City. His reasoning for this presentation is straightforward: "The streets and the buildings of Hiroshima are unfamiliar to Americans. Even from pictures of the damage realization is abstract and remote. A clearer and truer understanding can be gained from thinking of the bomb as falling on a city, among buildings and people, which Americans know well."<sup>71</sup>

Harlow Shapley, astronomer and director of the Harvard College Observatory, illuminated the issue of atomic energy by departing from bombs entirely, discussing instead the process that led to the discovery that atomic energy fueled the sun and stars. After expressing the substantial amount of energy tied up in matter and released by stellar reactions, Shapley concluded with an allusion to the crisis on which the rest of the book focuses. He recalls the supernova observed on July 4, 1054, later identified as the crab nebula. Such a catastrophic event, he notes, is "the result, apparently, of the mishandling by a

<sup>71</sup> Phillip Morrison, "If the Bomb Gets Out of Hand." *One World or None*, eds Dexter Masters and Katherine Way. (McGraw-Hill, 1946), 3.

star of its resources in atomic energy.”

In the third chapter, bomb pioneer Eugene Wigner set out by explaining his goals, which serve as an elegant statement of the movement's educational objectives as a whole:

Only very few of us can design or construct a steam engine or prepare an explosive compound, and it is not the purpose of this chapter to serve as a textbook on atomic engineering. However, most of us are familiar with the basic phenomena that are exploited in the steam engine and the ordinary explosives. Atomic explosives already influence international relations more profoundly than ordinary explosives, and it is not impossible that atomic energy may compete with our present sources of power in a few years. Tomorrow the basic facts about atomic power will be common knowledge. Even today a closer acquaintance with these facts may increase our foresight and help us to form our opinions both on questions of internal affairs and on those of foreign policies.<sup>72</sup>

Wigner went on to explain atomic reactions in comparison to more common combustion reactions, such as those of burning coal, or the explosion of nitroglycerin. He explained the significance of the equation  $E=mc^2$  and the importance of isotope separation in the production of bombs. He described a chain reaction and the essence of the atomic bomb, as well as how nuclear explosives differ from nuclear power production. This careful and concise essay did not offer any information that was not available through other reports, but it presented it in a clearly explained and precise way. Wigner's coal analogy was an effective tool for explaining why scientific understanding was vital for the

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<sup>72</sup> Eugene P. Wigner, “Roots of the Atomic Age,” *One World or None*, 11.

American electorate: in order for the public to make responsible decisions about managing steam engines or coal power plants, they must be aware that such engines run on coal, which is mined from the ground. Likewise, to make decisions about nuclear administration, Americans had to become educated about the needs and limitations of nuclear energy. A similarly precise chapter with charts and diagrams was included on the potential and demands of nuclear power production.

A chapter by General H.H. Arnold offered a jarring glimpse into military decision-making. He introduced the idea of economy and profit factor in war, using the terms of economics to describe both weapons and the damage they caused in monetary terms. According to General Arnold's economy, it is best to use weapons that destroy more area per cost unit, and it is only profitable to use weapons that cost the enemy more through the destruction they cause than it cost you to build and use the weapon. In much the same way that Wigner provided a careful and concise tour of nuclear theory, General Arnold presents a chillingly blunt analysis of military air strategy. His analysis came to this conclusion: that destruction by air is too easy, and therefore too costly for potential targets. Therefore, "No effort spent on international cooperation will be too great if it assures prevention of this destruction."<sup>73</sup> As a specialist in military decision-making, General Arnold had a similar educational goal in this essay as the scientists did in their contributions: in a world where destructive power is so great, civilians must be educated enough to understand military decisions on

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<sup>73</sup> General H.H. Arnold, "Air Force in the Atomic Age," *One World or None*, 27.



military terms.

The essays continued in an explanatory tone, providing clear and concise arguments for the reader. Louis Ridnour's "There Is No Defense" explored the possibility of anti-bomb technologies and concluded that even after taking on the expense of developing anti-missile devices a 100% effectiveness rate could not be achieved, and that when dealing with atomic bombs, anything less than 100% would result in unacceptable losses. Edward Condon's "The New Technique of Private War" examined the possibilities for the anonymous placement of atomic devices in buildings, shipping crates, pianos, or filing cabinets. He recalled Oppenheimer's statement before Congress when asked whether there was a device that could detect a bomb hidden in a closed crate: "Yes, there is such an instrument. It is a screwdriver, with which the investigator could painstakingly open case after case until he found the bomb."<sup>74</sup>

The last essay in the book to depend purely on technical knowledge was "How Close is the Danger," in which Frederick Seitz and Hans Bethe estimated the ability of other nations to build a nuclear weapon based on available information, scientific manpower, and physical resources. Comparing the publicly available knowledge to their private knowledge of what is actually required, they conclude that for any industrialized nation, including the U.S.S.R, six years was a reasonable guess-- a far cry from the estimate of 60 years promoted by General Groves.

Later essays in the book address less technical matters regarding the

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<sup>74</sup> E.U. Condon, "The New Technique of Private War," *One World or None*, 40.

nuclear threat. In "An Atomic Arms Race and its Alternatives," Irving Langmuir offered a thoughtful analysis of social and political tensions with Russia.

Langmuir had attended the 220<sup>th</sup> anniversary Moscow meeting of the U.S.S.R. Academy of Sciences in June of 1945 and returned with a conviction that the Russians were well on their way toward developing the bomb. He also brought hopes for the possibility for international control of nuclear weapons, but only if the two nations made a genuine attempt to communicate without relying on "slogans or idealized principles." "If we are to get along with other nations that have different ideals," he wrote, "we cannot insist that our concepts of freedom and democracy shall prevail everywhere. Such matters involve compromise and wise statesmanship. They are not to be settled by means of slogans."<sup>75</sup>

Harold Urey examined the sacrifices that would have to be made should an arms agreement fail in "How Does it All Add Up?": "the citizens of the country will know less and less in regard to vital questions... and finally must accept decisions in regard to public affairs blindly and from a few men in power."<sup>76</sup> These essays make a good compliment, for while Langmuir encourages that American principles be compromised in the interests of negotiation, Urey declares that those same principles are as good as lost should atomic weapons remain uncontrolled. It is interesting that neither of these men attempted to justify their legitimacy in writing about national ideologies instead of nuclear arms. In the context of this book, such writing was natural and did not need to be justified (although some critics would later take objection to this.)

<sup>75</sup> Irving Langmuir, "An Atomic Arms Race and Its Alternatives," *One World or None*, 51.

<sup>76</sup> Harold Urey, "How Does it All Add Up?," *One World or None*, 57.

A telling quirk of this book is that, while Langmuir and Urey treated almost exclusively non-technical topics, it is not until after these essays that a formal break is placed between the “facts” and the tentative “solutions” regarding the problem of the atomic bomb. The implication here is that all essays before this break were factual, while those following contain matters of opinion. As in all of their publications, the movement does not choose to draw a line between scientific and social concerns, but rather between matters of fact and matters of speculation. The modern constitution's division of science and society is entirely flouted in this text.

The remaining four chapters in the book discuss plans for international control. Leo Szilard contemplates “Can We Avert an Arms Race by an Inspection System?” He proposes that the international scientific community provides the best resource for control, but that first the issue of loyalty must be redefined. Once a control treaty is signed and ratified, Szilard suggests that the President might request all scientists and engineers to report any secret violations to the overreaching agency-- after modifying the espionage act to make such reporting legal, of course. Additionally, Szilard would require all scientists to spend some time each year abroad, giving them the opportunity to further cultivate international relationships, and potentially to report violations and request asylum from their home country. Szilard calls all of this an “experiment with problems of human relationships”<sup>77</sup>: his scientific terminology is perhaps the only thing that reveals his own scientific background.

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<sup>77</sup> Leo Szilard, “Can We Avert an Arms Race by an Inspection System?,” *One World or None*, 63.

Szilard's chapter could certainly be considered naïve. His belief that either Russia or the United States would so easily encourage sharing technology or reporting secrets assumed a worldview that was not widely held. However, Szilard's view was tempered somewhat by his acknowledgment of limitations: to ease inspection pressures, all nations will have to renounce developing atomic power for the next ten to 15 years, he writes, and the ultimate goal of world government can only be achieved once a comprehensive arms agreement and inspection system is reached. While Szilard makes radical proposals, his purpose is well in line with the premise of the movement: this post-atomic age is *different* than before, and we must change our ways of thinking to echo the changed world.

The final three chapters, one by political columnist Walter Lippman, one by Albert Einstein, and one attributed to the Federation of American (Atomic) Scientists, all likewise serve as calls to action. Lippman examines the possibilities of world government in the context of American traditions by way of the Federalist Papers and new international standards, represented by the Nuremburg trials, concluding that an international control regime holding individuals rather than states responsible for violations will allow for the prevention of new arms without eliminating the Security Council veto. Einstein's short piece, "The Way Out," proposes the immediate creation of a supranational organization with its own military force.

The concluding piece, written by the Federation of American (Atomic) Scientists (FAS), recognized the book's primary limitation: it gave no solution. The politically-oriented pieces were incomplete and, moreover, merely ideas.

However, this chapter, "Survival is at Stake," offered a final call to action. It asked, "What can you do?" and answered:

For one thing, now that you have read this book, discuss it with your friends-- don't lay it aside. A great decision rests on how well you and your elected representatives understand and act on the facts and proposals presented in these pages.

Continue your education for survival by being well informed. Ask for the releases and reports on what is happening as prepared by the scientists and issues by the National Committee on Atomic Information.

Make sure that your Senators and Congressmen know that you are aware of the unprecedented gravity of the problem. Urge them to act with courage and vision in solving the problem of the atomic bomb within the framework of the new ideas that, as this book shows, are necessary to the solution.

Time is short. And survival is at stake.<sup>78</sup>

It is telling that this final chapter did not emphasize a specific plan of action, but rather encouraged continued education as the path to survival. While it seems strange to hinge something as significant as "survival" on such a vague set of recommendations, it follows with the general belief of the movement that education in the "new ideas" emerging from the atomic age would lead to correct action.

The FAS chapter, in its tone and content, resembled the many magazine articles and newspaper opinion pieces with which the movement flooded the country. However, the book as a whole reveals that the movement was about

<sup>78</sup> Federation of American (Atomic) Scientists, "Survival is at Stake," *One World or None*, 79. The strange parenthesis in the group's name are meant to reflect the recent merging of the Federation of Atomic Scientists' and its partner organization, open to all scientists and engineers, the Federation of American Scientists. For more on this merge, see Smith, chapter 9.

more than scare tactics and propaganda. The hundred thousand copies sold and distributed indicate that the information contained in these pages was widely available, and the numerous conferences convened on the topic, including the “Pacific Northwest College Congress on The Student’s Stake in the Atomic Age” featuring Philip Morrison at Reed College, imply that it was widely discussed.<sup>79</sup>

In many ways, education was at the heart of the atomic scientists’ movement: through teaching the public what they knew and what they thought about it, these scientists set out to change the way the country and the world thought. While their shorter appeals, such as those on the radio, often concluded with pleas for action: “Support the McMahon Act!” or “Promote the Acheson-Lilienthal Report!,” their book did not. This reflects their common belief that proper education would serve as well if not better than propaganda. They took from their own experience of consensus in the scientific community the (perhaps naïve) lesson that full knowledge of the facts of atomic energy would inevitably lead any reasonable person inevitably to the same political conclusions they themselves reached.

*One World or None* was not universally well received, and much criticism was based on the supposed division between scientific and political thinking. This was less a matter of expertise as one of privilege: the assertion was not that the scientists did not address political complications, but instead that they could not possibly understand what they were dealing with in the political sphere. An example of this strategy is seen in Elmer Davis’ response to *One World or None*,

<sup>79</sup> Schedule of Meetings, Pacific Northwest College Conference, April 1946, Reed College Library Archives, Portland, Oregon.

“No World, if Necessary.” In the *Saturday Review of Literature*, he wrote:

It is generally recognized that one of the compensations of the atomic bomb is that it has set large numbers of scientists to thinking, for the first time, as citizens; but political thinking that gets anywhere requires certain disciplines of its own, which few scientists yet appear to have mastered. When the authors talk as experts in their own field, however, they are convincing.<sup>80</sup>

Later, Davis continued on this track, declaring that the scientists' weakness was their “terrifying unawareness of politics, of the difficulty of getting things done in a field more complex than nuclear science.”<sup>81</sup> Dismissing outright the analysis made by Langmuir, Szilard, and Einstein, his criticism is was not so much that the scientists didn't have anything constructive to say in the realm of politics, but rather that, as scientists, they were not qualified to say anything at all. Davis, political commentator and one-time head of the Office of War Information, presented himself as holding a much more qualified place from which to speak, although he, like the scientists, did not offer a solution to the problem of atomic control. In short, critics like Davis seemed to argue that as the scientists were not politicians, their political speech was not valid. Criticism such as Davis' shows the beginning of a campaign to defend the modern constitution's view of science and society: while scientists' thoughts on science were interesting, scientists' thoughts on society were not noteworthy.

<sup>80</sup> Elmer Davis, “No World, If Necessary,” *The Saturday Review of Literature* (March 30, 1946) 7.

<sup>81</sup> Ibid.

## MULTIMEDIA: THE MOVEMENT IN MAGAZINES, RADIO, AND FILM

As an addition to their educational mailings, the scientists engaged in a successful campaign of media saturation. They hired a publicist and writer named Michael Amrine, and published articles under the names of prominent scientists in *Collier's*, *The Saturday Review of Literature*, *Life*, *The Rotarian*, and many other diverse publications. They made connections with editors Bruce Bliven of *The New Republic*, Freda Kirchwey of *The Nation*, Norman Cousins of *The Saturday Review*, and others, securing a media base friendly to their cause.

They also had excellent connections in radio, working with well-known personalities Raymond Gram Swing and Clifton Utley, as well as airing and publishing advertisements through the Advertising Council. Harold Urey, J. Robert Oppenheimer, James Franck, and Hans Bethe all made public appearances on the intermission program of the New York Philharmonic.<sup>82</sup> It was through these diverse media channels that the scientists mobilized their support base: of the letters that poured into the Princeton office of the Emergency Committee of the Atomic Scientists, many more of them were in response to treatments in the media than to direct mailing. The movement initiated connections with diverse individuals through these media outlets.

In October of 1945, Edward Tompkins of Clinton Labs was contacted by a former high-school science student: Hollywood actress Donna Reed. In his reply to Reed, Tompkins expressed surprise that Hollywood had not already put forward a film on the atomic bomb. In response, she phoned him to introduce

<sup>82</sup> Paul Boyer, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* (Chapel Hill: University of North Carolina Press, 1994), 62.



her husband Tony Owens, a film agent who was thrilled with the idea. While Reed did not act in the film, this chance connection made the Federation of Atomic Scientists consultants on a film depicting (with considerable license) the story of the atomic bomb's creation. The move-making process was predictably tumultuous, as atomic scientists and Hollywood producers tend to value different things in a motion picture, and the eventual product, M-G-M's *The Beginning or the End*, did not receive an official endorsement from the FAS. Although initially eager to participate in the creation of a major motion picture, movement scientists were uncomfortable with the exaggerated or counterfactual depictions in the film.<sup>83</sup>

The movement's smaller film projects were significantly more satisfactory to the sponsoring groups, as they allowed much more creative control on the part of the scientists. The NCAI sponsored a film released in the fall of 1946 by Film Publishers and produced by Philip Ragan called *One World or None*. This one-reel animated film strip used striking images, including one projecting concentric circles of crosses onto the map of Chicago in order to indicate the toll of an atomic bomb dropped in that city.<sup>84</sup> This film received distribution in more than 20 major cities, including Atlanta, Boston, Chicago, Dallas, Denver, New York, San Francisco, and Seattle.<sup>85</sup>

The association in Philadelphia collaborated on a cartoon strip, *How to*

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<sup>83</sup> Smith, 316.

<sup>84</sup> Advertisement for Film Stills, 1947, Eva Marie and Linus Pauling Papers, Peace Collection, 13.3.4, Valley Library, Corvallis, Oregon.

<sup>85</sup> List of Local Theatrical Film Exchanges, undated, Eva Marie and Linus Pauling Papers, Peace Collection, 13.4.2a, Valley Library, Corvallis, Oregon.

*Live with the Atomic Bomb*, and movement scientists in Chicago were the technical consultants for a film called *The Atomic Bomb* by the Society of Visual Education.<sup>86</sup> When the “March of Time” film *Atomic Power* was released in August 1946, Harold Oram sent letters on encouraging theater owners to show the film and promote it to their colleagues. Oram's letters also asked for critical feedback from these theater owners, noting that “Professor Einstein would... be interested in knowing your re-action to this film after you have seen it, and particularly your judgment as to how effective it is likely to prove to the theatre going public.”<sup>87</sup>

The movement's intense concern with popular media only reinforces the fact that it's message was intended for mass consumption. Its highly critical view of misinformation, as seen in *The Beginning or the End*, shows that its intention was not just public awareness but public education. Through media connections, movement groups were able to spread their message farther than they ever could have through mailings alone.

#### TELEGRAMS, LETTERS, AND FUND RAISING: FROM THE FILES OF THE ECAS

*One World or None* provides a close look at the arguments made by movement scientists in favor of international control of atomic energy. We can learn from it what the scientists were saying to the public at large, and can judge by its distribution numbers how widely it was circulated. We will now look at the

<sup>86</sup> Smith, 319.

<sup>87</sup> Harold Oram to A.H. Blank, Tri-States Theatre Corp, August 1, 1947, Eva Marie and Linus Pauling Papers, Peace Collection, 13.3.1, Valley Library, Corvallis, Oregon.

other extreme of communication scale: to letters and telegrams individually sent to increase support and funds for the movement. The initial wave of telegrams was mailed to known supporters, friends and colleagues. These people often responded with mailing lists of their friends, and by this method the campaign was expanded, although with frequent duplication of names. One of the appeal mailings from the Emergency Committee of Atomic Scientists began with this notice: "We are grateful to the many friends who have offered us mailing lists. If you have received a copy of this appeal, you can help us by passing on the duplicate to a friend."<sup>88</sup>

While the atomic scientists' movement in general was not characterized by prominent scientists in leadership roles, the archive I have for study represents the sole exception: the Emergency Committee of Atomic Scientists (ECAS), chaired by Albert Einstein. The texts produced by the ECAS provide a striking picture of how the scientists' movement worked on an individual level.

The genesis of the ECAS is unclear. It appears to have been born out of a decision by the director of the NCAI, Daniel Melcher, who in the midst of public fervor over civilian control in the spring of 1946 felt that public support existed for even larger efforts if it could be harnessed. New York fundraiser Harold Oram estimated that \$20,000 a month could be raised with proper encouragement, and suggested that a prominent scientist ought to head such a drive. With this in mind, Melcher and Oram went to Princeton and met with Einstein. Although how exactly is unclear, the idea for an Emergency Committee emerged from this

<sup>88</sup> A Statement by the Emergency Committee of Atomic Scientists, undated, Eva Marie and Linus Pauling Papers, Peace Collection, 13.4, Valley Library, Corvallis, Oregon.

meeting: the first appeal for funds brought in nearly \$100,000.<sup>89</sup> Its provisional ruling committee also included Hans A. Bethe of Cornell, formerly of Los Alamos, Edward U. Condon of the National Bureau of Standards and President of the American Physical Society, Leo Szilard of Chicago's Metallurgical Laboratory, and Harold C. Urey of the University of Chicago, formerly doing uranium work at Columbia University.

This initial appeal was carried out through telegrams, letters, and appeals published in magazines and newspapers. The appeal wired to potential supporters in the last week of May, 1945 certainly conveyed the urgent tone implied by the new group's name. It declared that "our world faces [a] crisis as yet unperceived by those possessing power to make great decisions for good or evil," and continued with one of Einstein's most striking phrases from this period: "The unleashed power of the atom has changed everything save our modes of thinking and we thus drift toward unparalleled catastrophe."<sup>90</sup>

The Emergency Committee's primary goal was to raise funds in order to further atomic information campaigns carried out by the NCAI, and so its appeal had to cover two points: first, that the atomic bomb created an urgent world situation, and second, that money for information dispersal would help. Therefore, for the same reason that *One World or None* touted the power of education, the ECAS telegram emphasized that widespread and dangerous

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<sup>89</sup> Smith, 325.

<sup>90</sup> Telegram, undated, Eva Marie and Linus Pauling Papers, Peace Collection, 13.4.2a, Valley Library, Corvallis, Oregon. While the telegram has no date, it is appended to a letter dated June 15, 1946, which indicates that the attached telegram was first sent "three weeks ago." Therefore, we can date the initial appeal telegram in the last week of May, 1946.

ignorance remained: not even lawmakers truly perceived the danger.

Next, the scientists established their personal relationship to the global dilemma: “We scientists who released this immense power have overwhelming responsibility in this world life and death struggle to harness [the] atom for [the] benefit of mankind and not for humanity’s destruction.”<sup>91</sup> The appeal did not specify that the scientists were needed for their scientific expertise, but rather that they had a special responsibility to insure that their creations are properly managed. As elsewhere, there was a specific identification of the scientists as scientists, but no line between their political and scientific responsibilities. To the contrary, in this appeal they framed their purpose in human-oriented terms: “Bethe, Condon, Szilard, Urey, and Federation of American Scientists join me in this appeal, and beg you to support our efforts to bring realization to America that mankind’s destiny is being decided today now at this moment.” While their methods were largely pedagogical, these men did not see their role simply as the nation’s science teachers. The knowledge they had to convey was revealing and transformative; they believed that their message would change the path of history.

Finally, the telegram asked for funds: “two thousand dollars at once for a nationwide campaign to let the people know that new type of thinking essential if mankind is to survive and move toward higher levels.” The message concluded, “We ask your help in this fateful moment as [a] sign that we scientists do not stand alone.” This last line is an important one in sorting out the overall message

<sup>91</sup> *ibid.* The lack of articles in this quotation is due not to bad grammar but rather to the fact that the message was conveyed via telegram. I have chosen to insert them here for clarity.

of the movement. Because so much of the movement's message breaks down traditional lines dividing scientific and political work, it commonly elicited fears of technocracy-- although its members did not seek political office for themselves, some thought that their incursions into the realm of politics implied that they wanted to take over that space as well, and perhaps control society in the same way that they controlled their laboratories. In the framework of the modern constitution, this confusion makes a kind of sense. The scientists were rejecting a strict division between the work of science and the governance of society, they were making connections between them in an overtly public way. However, as they explained in this document, the objective was not to take over that other territory, but instead to show that it was not so "other" after all. The connections between science and society as interpreted by the atomic scientists' movement were not newly forged, but they were newly important and deserved recognition. The movement scientists wanted, most of all, *not* to stand alone.

Later in its campaign, the ECAS distributed a half-sheet flier along with a coupon to be mailed in with contributions to the campaign. This mailing listed six points "accepted by all atomic scientists," which outlined the points covered in *One World or None*: atomic bombs are cheap and increasingly destructive, there is no defense, there is no secret to be kept from other nations, attempts at preparedness will erode our social order, bombs will be used in the next war and will destroy civilization, and the only solution is international control and an end to war. Only the first three of these points can be considered technical in nature, but no distinction was made within the context of the piece.

The statement declared the mission of the ECAS, “to see that these simple facts become known to the public,” and further declares that “The committee does not propose to make governmental policy, either on the national or international level. Its purpose is to make available an understanding of the Atomic Era on which such policy must depend.”<sup>92</sup> In discussing the role of science in society as expressed by these documents, the movement's unconventional standpoint challenges us even as we begin to understand it. The committee does not, they declared, want to make policy. However, they wanted to offer an understanding of the Atomic Era that such policy would rest on. The understanding that the scientists offered was not purely scientific: it merged with social and political concerns as well. It split away from and burst through the modern constitution, and so is difficult to characterize in the terms we are used to using for such things: scientific, social, political. To use Bruno Latour's term, the movement's understanding of the atomic bomb was essentially a hybrid, as much of a hybrid as the bomb itself.

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<sup>92</sup> *A Statement by the Emergency Committee of Atomic Scientists*, undated, Eva Marie and Linus Pauling Papers, Peace Collection, 13.4.10, Valley Library, Corvallis, Oregon.

Chapter 3  
Movement's End: Repression and Changing Views of Science

Beginning in the fall of 1946, the atomic scientists' movement clearly entered a period of decline. Despite income from sales of *One World or None*, membership dues, and a number of New York fund-raising dinners, the Federation of American Scientists (FAS) was badly in debt, owing \$10,000 by September of 1946. Due to its non-profit tax status, the ECAS was not able to fund the partisan group, and it was only through last-minute donations from members that the FAS stayed afloat.<sup>93</sup> Furthermore, the ECAS itself pursued its last drive for funds in the spring of 1948.

In addition to financial troubles, the movement groups faced both external and internal challenges: while struggling to fight accusations of subversive activity and denial of necessary security clearances, the organizations were also fighting internally about communists within their ranks and the appropriateness of political speech. As the decade closed, the atomic scientists' movement had come full circle with regard to scientists' role in society. Its members had emerged from war convinced that the atomic bomb had forever changed the role of science in the world, but by 1949 were chiding one another for speaking outside of their sphere of authority, and shrinking from public statement on matters of science policy with the claim that such things were "outside their field of competence."<sup>94</sup>

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<sup>93</sup> Smith, 494.

<sup>94</sup> Ibid, 521.



## FINANCIAL TROUBLES

The \$10,000 accrued FAS debt in August 1946 was particularly impressive given that its entire expenditures from January to August of that year was only \$23,368.24. Although the Emergency Committee, founded three months before, was having no trouble with fundraising, it was not able to contribute to the FAS and maintain tax-exempt status-- Emergency Committee funds went primarily to the *Bulletin of the Atomic Scientists* and the NCAI. While some FAS leaders pursued seeking tax-exempt status for themselves as an educational group, member associations opposed this move as too disruptive to movement activities: it would prevent them from lobbying Congress for any specific legislation, and mandate that all educational activities be balanced pro and con.

Instead, the FAS founded a new organization in December 1946, the Association of Scientists for Atomic Education (ASAE). Like the NCAI, this group had education, not activism, as its primary purpose, and so was able to receive tax-deductible donations and ECAS funds. Launched with \$13,600 from the ECAS, the ASAE was composed of seven study committees covering international control, domestic developments, preventative war, secrecy and security in science, educational policy, educational techniques and their effectiveness, and foreign correspondence. This group had a brisk start, cooperating with the NCAI on community programs and sponsoring teacher education in New York state.<sup>95</sup>

In spite of this brief revival, however, trouble was brewing in every branch

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<sup>95</sup> Smith, 494-497.

of the movement. Ideological divides proliferated as it became increasingly unclear what path of action would allow the groups to fulfill their original goals, particularly with regard to international control of atomic energy. Some individuals were becoming increasingly convinced that a push for full world government was the only plausible solution. Others encouraged patience and faith in the U.N., while still others, including Urey, began contemplating a "limited world government"-- an alliance of "all nations willing to sacrifice sovereignty in the interests of self-defense against totalitarianism."<sup>96</sup> Scientists not affiliated with the movement began to make public other views: Edward Teller offered a "Challenge to Atomic Scientists" in which he declared that if international control were unattainable, it was the responsibility of atomic scientists to keep the country prepared for war as well as peace.

These divisions led to the Emergency Committee of Atomic Scientists to cease its fund-raising campaign in June 1948. In a May memo to Dr. Harry Brown, the group's Executive Vice Chairman Harold Oram noted that although the group had the financial support of at least 15,000 Americans, "During the past year, there has developed a lack of agreement within the Committee on positions to be taken to advance its stated purposes," as was apparent by the lack of a public position at the time: the closest to a consensus was an April 12<sup>th</sup> statement pushing for more education and continued faith in the United Nations which bore signatures from only eight of the twelve committee members. "This sadly curtails the possibility of effective fund raising which, in this field, is purely

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<sup>96</sup> Smith, 504.

the presentation of an important point of view on which the appeal and support are based."<sup>97</sup> As was clear at the ECAS' outset, a compelling purpose and clear plan of action was all that was needed to raise funds and popular support. Lacking either, Oram felt that it was at best immoral, and at worst ineffective, to pursue fund raising at this time.

The Emergency Committee's decision to go dormant had repercussions throughout the movement. Although the NCAI chairman Ralph McDonald tried to rationalize the loss of the prominent scientist fund-raisers as signifying a new phase in the organization, leading them to look to social scientists and politicians for support, ultimately the lack of ECAS funding was a crippling blow. Likewise, when ECAS funds dried up the short-lived ASAE was also disbanded. The final ECAS fund drive in the spring of 1948 provided for financial commitments to the *Bulletin of Atomic Scientists* although it left the group in a slight deficit. Supporters were notified of the group's dormancy and encouraged to support the *Bulletin* instead. The Emergency Committee legally dissolved in September 1951.

#### LOYALTY, SECURITY, AND ANTICOMMUNISM: DANIEL MELCHER

Financial troubles and uncertainty regarding the next logical path that its activism should take were certainly two sources of trouble that plagued the atomic scientists' movement from 1946 forward. Another persistent source of debate was over issues of communists within the movement, and later, difficulties for movement members seeking security clearances for government work. The

<sup>97</sup> Memorandum: Harold L. Oram to Dr. Harry Brown, May 19 1948, Eva Marie and Linus Pauling Papers, Peace Collection, 13.5.25, Valley Library, Corvallis, Oregon.

growing body of work studying recently declassified FBI records shows that the suspicion, distrust, and persecution movement scientists faced was far from random, and that it had sources both outside and inside the organization.

In Chapter 1, treatment of the McMahon act mentions that following the Canadian spy scare, accusations of anti-American or disloyal sentiment among scientists were used by opponents of the bill in order to urge continued military control. As explained there, Representative J. Parnell Thomas attempted to kill the bill while it was before the House Rules committee by citing accusations from a HUAC investigation regarding “subversive activities” at Oak Ridge. These activities, of course, were those of the atomic scientists' movement: Thomas pointed out that they were “devoted to the creation of some form of world government,” “very active in support of international civilian control of the manufacture of atomic materials,” and “definitely opposed to Army supervision at Oak Ridge.” Furthermore, these subversive scientists “not only admit communications with persons outside of the United States but in substance say they intend to continue this practice.”<sup>98</sup>

In addition to these true comments, phrased here to sound threatening, the preliminary HUAC report written by HUAC chief council Ernie Adamson also made a number of false statements. It claimed that the CIO was actively trying to unionize all Oak Ridge workers and that Oak Ridge security officers believed that “the peace and security of the United States is definitely in danger.” Thomas' tirades on these subjects did not manage to delay the bill in the Rules Committee,

<sup>98</sup> Jessica Wang, *American Science in an Age of Anxiety*, (Chapel Hill: University of North Carolina Press, 1999)45-46.

and so he made his case again on the House floor, this time reading the entire Adamson report into the record in spite of direct refutation by Illinois democrat Adolph J. Sabath. Although the McMahon bill ultimately weathered these challenges and passed both House and Senate, the lesson was a hard one for the movement. These attacks and a broader realization of the organization's vulnerability to anti-Communist ideologues panicked FAS chair William Higginbotham. He issued a memo on July 18 discussing these fears with the FAS administrative committee, worrying over FBI surveillance and the potential destruction of the FAS and NCAI. Higginbotham began rigorously self-policing, making sure to distinguish his views from those of potentially subversive groups whose meetings he addressed and closely scrutinizing movement scientists for any sign of the ever-looming communist party line.<sup>99</sup>

Science historian Jessica Wang's work with declassified FBI documents makes clear that individuals, from scientists to cab drivers, were informing on the activities of the atomic scientists' movement. It is also clear that in the summer of 1946, amidst internal concerns over the loyalty of NCAI chairman Daniel Melcher, two individuals from the FAS whom Wang assumes to have been Higginbotham and Joseph Rush, spoke with Attorney General Tom Clark. An informer's report described the July 26 meeting:

“[Name deleted] reported to the Attorney General that he was fearful that the communists were obtaining positions in his organization for the purpose of taking over. Mr. Clark is reported to have stated if [name(s) deleted] would give him the names of the suspects he

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<sup>99</sup> Wang, 50.

could have them checked *and turn the information over to the Federation of American Scientists for their confidential use.*<sup>100</sup>

Melcher was fired two days later, although it seems that the FAS never took the Attorney General up on his offer for information. Instead, its leaders fired Melcher of their own accord, publicly because they “intended to expand and needed a man of higher qualifications and a bigger name to head the organization,” but clearly over loyalty concerns.

Melcher had been aware that some in the FAS were suspicious of his writings, which they accused him of being in accordance with the “party line.” He wrote a letter of protest to the NCAI executive committee in early July complaining that he was the victim of red-baiting. When he was fired, thirteen of the fourteen NCAI staff members resigned.<sup>101</sup>

A further repercussion of this internal purge was E.U. Condon's August 5 resignation from the Emergency Committee. While his initial letter of resignation was quite brief and did not mention Melcher's dismissal, when asked to reconsider by Einstein he clarified his position: “In insisting on this decision I owe the others some words of explanation. I do not want to take the position of approving or disapproving the action of the National Committee on Atomic Information Executive Committee in dismissing Mr. Daniel Melcher.”<sup>102</sup> Condon was very careful not to state that he was resigning in protest of Melcher's

<sup>100</sup> Wang, 70, Wang's italics, not in original.

<sup>101</sup> Wang, 50.

<sup>102</sup> E.U. Condon to Albert Einstein, August 5, 1946, Eva Marie and Linus Pauling Papers, Peace Collection, 13.5.9, Valley Library, Corvallis, Oregon, and E.U. Condon to Albert Einstein, August 9, 1946, Eva Marie and Linus Pauling Papers, Peace Collection, 13.5.9b, Valley Library, Corvallis, Oregon.

dismissal, although the tone and timing of his letter make clear that it was in response to the firing. He made explicit that he “would like to withdraw in a completely neutral spirit, without any implication of criticism or disapproval of the activities.” Ironically, although here he was quite circumspect in not coming to Melcher's defense, Condon himself would soon become the center of a clearance controversy.

In Melcher's case we see the consequences of oppression from the outside becoming oppression from within. Because he feared drawing punishment from the growing anti-Communist faction in government, Higginbotham was careful to purge from movement organizations individuals who might draw such criticism. This decision was only the beginning of a larger withdrawal from political action, however: while internal policing began by punishing those who held the wrong political ideology, it would eventually extend to those who made public any political views at all. When this shift occurred, the movement had fully capitulated to the re-assertion of the modern constitution.

#### LOYALTY, SECURITY, AND ANTICOMMUNISM: EDWARD CONDON

The Condon case was probably second in publicity only to the Oppenheimer security hearings. Condon, appointed to head the National Bureau of Standards in November 1945, had drawn the suspicion of Representative J. Parnell Thomas during the McMahon hearings. Thomas became chair of the HUAC in late 1946, when the Republicans gained control of the House. In March 1947, Thomas instigated two stories in the *Washington Times-Herald* about

Condon, once claiming that he had been duped into sponsoring a dinner for an alleged communist front group, and another stating that his loyalty was being probed over his membership in the American-Soviet Science Society. Attacks continued through June and July; on July 22<sup>nd</sup> Representative Chet Holifield defended Condon on the House floor.

On 1 March 1948, Thomas' intentions became clear. He released a preliminary report from a HUAC subcommittee declaring that Condon was “one of the weakest links in our atomic security.”<sup>103</sup> The report rested entirely on innuendo, stating that Condon's security clearance with the AEC was pending (due not to unclear loyalty status but rather a bureaucratic backlog) and that he had associated with “an individual alleged, by a self-confessed Soviet espionage agent, to have engaged in espionage activities,” (although there was no evidence linking Condon to those activities). In all, Thomas' objections were not to Condon's actions but to his political views.<sup>104</sup>

Scientists' organizations, including the FAS, ECAS, Association of Pittsburgh Scientists, the Physical Society of Pittsburgh, the Physics Department faculty from Harvard, the American Association for the Advancement of Science, and the American Physical Society all came to Condon's public defense. The ECAS held a dinner for him in New York City on April 12, inviting “all those to

<sup>103</sup> Wang, 132.

<sup>104</sup> This material is well covered in Wang's section on “HUAC and the Condon Case, 1947-1948”, pages 130-147. However, while Wang notes that Thomas was “particularly suspicious of scientists,” (136) the evidence she uses to support this claim implies only a distaste for politically active scientists. She quotes an article by Thomas in *Liberty*: “Our scientists, it seems, are well schooled in their specialties but not in the history of Communist tactics and designs. They have a weakness for attending meetings, signing petitions, sponsoring committees, and joining organizations labeled 'liberal' or 'progressive' but which are actually often Communist fronts.” Clearly, those scientists not inclined to join political movements (especially liberal political movements) were not nearly as deserving of Thomas' ire.



whom the rights of the citizen to freedom of speech and freedom of research are of vital importance, and who believe that both the liberty of the individual and the free progress of science are seriously threatened by the methods of the House Committee.”<sup>105</sup> The dinner was a smashing success. Urey and Condon both spoke at length about the importance of freedom in science and society, and a great many donations to the *Bulletin* were sent in Condon's honor by individuals not able to attend.

Condon was granted his AEC clearance on July 15, permitting him to access classified information as related to his duties as National Bureau of Standards director. The HUAC said nothing; the *Bulletin* complained: “This House Committee has the practice of never stating clearly that a man they have 'investigated' has proved his innocence; but drops the investigation if it becomes 'unprofitable,' leaving lingering suspicions.”<sup>106</sup> Indeed, Condon's career was plagued by lingering suspicions, eventually driving him from government into industry, and then, when his industry work also required a clearance, into academia.

Though Condon's case was sensational, it was not representative of most scientists' run-ins with the uncertain clearance procedures. Most scientists were less well-known than Condon, with fewer high-level friends and less familiarity with government procedures. Examples range from John and Hildred Blewett, married physicists who were kept in limbo for seven months waiting to begin

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<sup>105</sup> Urey to “Friend,” April 1, 1948, Eva Marie and Linus Pauling Papers, Peace Collection, 13.4.20, Valley Library, Corvallis, Oregon.

<sup>106</sup> Quoted in Wang, 145.

work at Brookhaven only to be denied clearance, but permitted to work on unclassified projects, to J.W. Mauchley, who's clearance was revoked in January 1950 because "someone claimed to have seen his name on a petition circulated by the Association of Philadelphia scientists calling for civilian control of atomic energy."<sup>107</sup> These individuals were caught up in the system with no defenders and were not sufficiently savvy to protect themselves.

The cases of Condon, Mauchley, the Blewetts, and the thousands of other scientific workers inconvenienced, attacked, or fired throughout these early Cold War years demonstrate the ways in which government power could be used to enforce particular political views among scientists. When many of the jobs in science were for the government, and most of these required security clearances which could be denied on any number of personal or political grounds, the FBI, HUAC, and AEC security review board wielded a surprising amount of power over the political actions of scientists. In these years the message was clear: scientists, unless explicitly employed in an advisory role, should stay away from politics altogether. Those who did not were quite literally putting their careers at risk. The modern constitution, with its strict divide between the social and the scientific, had found a strong enforcer in the anti-Communist forces of the early Cold War.

LOYALTY, SECURITY, AND ANTICOMMUNISM: J. EDGAR HOOVER VS. THE SENATE

Each of the above cases deals with individuals and could therefore be

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<sup>107</sup> Wang, 100; Paul Forman, "Beyond Quantum Electrodynamics: National Security as Basis for Physical Research in the United States 1940-1960, (HSPS 18:1)174.

dismissed or justified on an individual basis. The most amusing, and most telling, case from this period, involved a large group: “an enormous Soviet Espionage Ring” in Washington D.C. This ring, as was reported to FBI director J. Edgar Hoover by an informant, and was repeated by Hoover to presidential confidante George E. Allen as “of interest to the president,” included individuals at the highest levels: Undersecretary of State Dean Acheson, Secretary of Commerce Henry A. Wallace, and E. U. Condon. It was allegedly lead by James R. Newman, council to the Special Senate Committee on Atomic Energy. Hoover wrote:

The informant has drawn the conclusion that the entire setup of the McMahon Committee to investigate and recommend legislation on atomic energy and its use is a scheme to make available information concerning the atomic bomb and atomic energy, and that it all amounts to Soviet espionage in this country directed toward the obtaining for the Soviet Union the knowledge possessed by the United States concerning atomic energy and specifically the atomic bomb.<sup>108</sup>

To Hoover and his informant, the very proceedings of the Senate, the testimony of the scientists, and all surrounding activism, was inherently suspicious-- as the above report concludes, it was all probably Soviet espionage.

John Earl Haynes' 1996 work, *Red Scare or Red Menace: American Communism and Anticommunism in the Cold War Era*, provides substantial evidence that the Soviets were quite interested in American scientific information, and were actively pursuing it through agents in this country. What

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<sup>108</sup> Wang, 78.

needs to be explained, though, is the suspicion of the atomic scientists' movement: there is no obvious link between atomic espionage and all activist scientists. We can find this link firmly in the modern constitution. The perspectives of Representative J. Parnell Thomas and J. Edgar Hoover depend on a static world order, and everything in its place, a worldview that corresponds strikingly with the modern constitution. Scientists who traversed the ground between the social and natural spheres were considered threatening. Activist scientists were clearly out of place and therefore worthy of suspicion. It follows from this that we see the place of scientists actively debated within the movement during these tumultuous years as in the instances that follow.

#### A QUESTION OF PLACE: DETERMINING LEGITIMATE SCIENTIFIC SPEECH

In May of 1947, Oppenheimer wrote William Higginbotham a letter declaring that the federation could only be useful if the scientists change their role:

no longer that of the prophets of doom coming out of the desert, but rather that of a group of specialized and, in their way, competent men who must be sensitive to all new avenues of approach which are hopeful and who are after all intellectuals and not politicians. *If you can help to achieve this*, you will have not only my support but my warm and I hope, useful assistance.<sup>109</sup>

In this letter, Oppenheimer takes a similar tone to his entreaties to the Association of Los Alamos scientists at the very outset of the movement: asking

<sup>109</sup> Quoted in Smith, 503, italics mine.

group members to temper the approach, recognize the limitations on the validity of their opinions, and elect to serve as specialized advisers, competent, at best, “in their way,” but not generally so. By choosing this role, as Oppenheimer had advocated all along, the movement would win his support.

This view did not come only from the outside players such as Oppenheimer, however. Beginning in the spring of 1948, internal memos suggest a similar self-censorship within the Association of Scientists for Atomic Education. A May 10 memo from four members of the Atlantic Region of the ASAE recommended that “the Regional Council, at its meeting on May 23, adopt a policy dividing public statements by ASAE officials or Committees into three classes:” Scientific Facts, Facts or policies on which there is discussion and disagreement, and individual opinions. Furthermore, all statements falling into the latter two categories must be clearly labeled as such and explicitly dissociated from the organization. This memo was similar in tone to criticism made against the scientists at the very outset of their activities, such as when the *New York Times* declared in October 1945 “On issues of foreign policy... the atomic scientist carried no more authority than an ‘intelligent doctor or carpenter.’”<sup>110</sup> The striking difference here, though, is that the criticism is now being applied from the inside. The modern constitution had crept back in to the mindset of the movement.

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<sup>110</sup> Paul Boyer, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* (Chapel Hill: University of North Carolina Press, 1994), 94.

## MOTHER MAY I?: THE MODERN CONSTITUTION RETURNS

Concluding her treatment of the movement's lost momentum only two years after its start, Alice Kimball Smith describes an almost inevitable progression: combining hopelessness in the face of the United Nations stalemate and a general realization that the cold war world wasn't so bad, scientists went back to its laboratories, leaving politics behind them. Furthermore, "the rapid incorporation of scientists into government in an advisory role meant that they themselves were to a large extent able to call the tune."<sup>111</sup> Introducing an understanding of anti-communism from within and without the organization complicates this matter, however, and shifting views of science in society muddy the waters more.

In a memorable passage describing the "invincibility of the moderns," Bruno Latour writes:

Because it believes in the total separation of humans and nonhumans, and because it simultaneously cancels out this separation, the Constitution has made the moderns invincible.... If you object that they are being duplicitous, they will show you that they never confuse the Laws of Nature with imprescriptible human freedom. If you believe them and direct your attention elsewhere, they will take advantage of this to transfer thousands of objects from Nature into the social body while procuring for this body the solidity of natural things. If you turn round suddenly, as in the children's game 'Mother, may I?', they will freeze, looking innocent, as if they hadn't budged: here, on the left, are things themselves; there, on the right, is the free society of speaking, thinking subjects, values, and signs.<sup>112</sup>

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<sup>111</sup> Smith, 522.

<sup>112</sup> Latour, 37.

This game of “Mother, may I?” was going on within government ranks in the final years of the 1940s. On the one hand, the FBI, the HUAC, and eventually President Truman as well all proclaimed that movement scientists were improper, and that the speech of scientists is unwelcome outside of its prescribed boundaries. On the other, the President and other governmental institutions were scuttling across the line scientists, mostly those not tainted by political activism, and installing them in official positions. These scientists in government were called science advisers and their political role was viewed as entirely proper. When we turn as if to catch them, we are shown that everything is indeed as it should be: scientists are in their laboratories, advisers are in Washington, and no one is speaking out-of-bounds— a neat trick.

In part because of pressures from without and in part because of divisions within, the atomic scientists' movement pulled away from its bold demonstrations asserting the changed role of science in society. They returned, for the most part, to a traditional “modern” position, engaged in the study of Nature and thus unqualified to speak about Society with any special knowledge.

For a time, the conventionality of McCarthyism and the Cold War kept the modern constitution in fine form. The fissure created by the atomic bomb did not disappear, however. Only some twelve years later, when individuals like Thomas Kuhn, Bruno Latour, and Michel Callon began questioning the role of science in society, they struggled with some of the very same points that Niels Bohr and James Franck struggled with in 1944. These scholars wondered if perhaps science could not be isolated quite so neatly from society. Perhaps an

understanding of society was needed to truly understand science, and maybe a better understanding of science would help students of society. Then again, perhaps the notion of these as separate things is not so helpful after all. In a world where the modern constitution is breaking apart, just how it ought to be re-ordered remains unclear. However, the now-widespread disciplines of history and sociology of science, “science studies”, or “science, technology, and society” make clear that the modern constitution, defended so rigorously through the 1950s, may be gone for good.



<b>Atomic and World Events, 1942-1948: A Timeline</b>		
<b><i>Atomic Scientists' Movement</i></b>		<b><i>WWII and Cold War Events</i></b>
Arthur Compton forms the Metallurgical Laboratory at the University of Chicago with the objective of producing plutonium in an atomic pile.	<b>January 1942</b>	
FDR instructs OSRD Director Vannevar Bush to promote a full-scale effort to build the bomb: he forms the Manhattan District of the Army Engineers.	<b>June 1942</b>	Battle of Midway halts Japanese expansion to the east.
Creation of Los Alamos Weapons Laboratory: soon has a staff of more than 2,000 people.	<b>March 1943</b>	
At the Metallurgical Laboratory, several meetings are held to express concern over the future of nuclear policy: attempts at organization disbanded by military officials.	<b>July-August 1943</b>	
Niels Bohr meets with President Roosevelt to encourage him to communicate with Russia regarding the atomic bomb.	<b>July 1944</b>	
	<b>May 1945</b>	Germany surrenders unconditionally in Rheims, France.
The Franck Report, a document from the Metallurgical Laboratory expressing concern over use of atomic weapons and a post-war arms race, is sent to the Secretary of War.	<b>June 1945</b>	The U.N. Charter is signed in San Francisco.
In Alamogordo, New Mexico, the first test of the implosion plutonium bomb is successful.  Leo Szilard sends several letters of protest to President Truman.	<b>July 1945</b>	Potsdam Conference in Potsdam, Germany, calls for unconditional surrender from Japan.
A uranium bomb, dubbed Little Boy, is dropped on Hiroshima, Japan. Three days later, a plutonium bomb, Fat Man, is dropped on Nagasaki, Japan.	<b>August 1945</b>	A uranium bomb, dubbed Little Boy, is dropped on Hiroshima, Japan. Three days later, a plutonium bomb, Fat Man, is dropped on Nagasaki, Japan.
	<b>September 1945</b>	Japan signs surrender documents aboard the battleship Missouri.

The May-Johnson bill, a War Department plan for domestic control of atomic energy, is introduced into Congress with the endorsements of Bush, Conant, Lawrence, Fermi, Compton, and Oppenheimer.	<b>October 1945</b>	
The Federation of Atomic Scientists, under the leadership of William Higginbotham, forms in Washington D.C. largely to oppose the May-Johnson Bill.	<b>November 1945</b>	
The McMahon bill is introduced into Congress as an alternative to the May-Johnson plan for domestic control of atomic energy.	<b>December 1945</b>	
President Truman expresses support for the McMahon bill.	<b>February 1946</b>	
Nuclear testing begins at Bikini. The scientists' movement book, <i>One World or None</i> , is published.	<b>March 1946</b>	The Canadian government announces that several scientists have been found involved in espionage.  Winston Churchill delivers the "Iron Curtain" speech at Westminster College in Fulton, Missouri, describing the growing rift between Soviet and Western powers.
The HUAC investigates Oak Ridge scientists on suspicion of espionage, but finds nothing.	<b>April 1946</b>	
Bernard Baruch presents a plan for international control of nuclear energy to the United Nations.	<b>June 1946</b>	
McMahon bill is signed into law.	<b>August 1946</b>	
	<b>October 1946</b>	David Lilienthal is appointed to head the newly-formed Atomic Energy Commission.
	<b>March 1947</b>	President Truman establishes a loyalty-review program requiring loyalty tests for federal employees.  U.S. begins active financial support of government forces in the Greek Civil War.
	<b>June 1947</b>	Marshall Plan is announced.

<p>HUAC chair Parnell Thomas declares that Edward Condon' was "one of the weakest links in our atomic security." Condon is investigated and accused of espionage, though the claims are never substantiated.</p> <p>Formal deadlock declared at United Nations, the Baruch Plan for international control is abandoned.</p>	<p><b>March 1948</b></p>	
<p>The Emergency Committee of Atomic Scientists concludes fund-raising activities and declares itself "dormant."</p>	<p><b>June 1948</b></p>	<p>Due to a Soviet blockade, for the next 320 days the Western sections of Berlin are denied power and supplies, relying on British and U.S. airlifts to survive.</p>

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