

Making (Common) Sense of the Bomb in the First Nuclear War

James J. Farrell¹

Introduction

The Bomb fell on Hiroshima at 8:16:02 local time. The Bomb fell on America sixteen hours later, when the White House issued a press release from President Truman. The bomb that fell on Hiroshima exploded forty-three seconds after it fell from the bomb bay of the *Enola Gay*; the bomb that fell on America had been more than forty years in preparation, dating to the 1896 discovery of radium.

How would Americans make sense of the new invention? Harry Truman's statement was a start, the first public pronouncement on the Bomb. But the words he pronounced had been shaped in the preceding six years. The uncommon people who created the bomb had also created a discourse that made sense of it. When President Truman and other Americans first learned about the atomic bomb in 1945, it came packaged in assumptions about war and weapons, about science and secrecy, about government and citizenship, about technology and progress that familiarized this unfamiliar weapon. The sense of these uncommon people—derived from discourses of science, nationalism, war, and consumption—became the common sense of the nuclear age. This essay traces the (social) construction of that common sense during the first nuclear war.

When Harry Truman took the oath of office as President of the United States, he was like the American public; he knew virtually nothing about the atomic bomb (and no more about plans to use it on Japan). Truman had been Vice-



President Truman announcing the use of the atomic bomb. Courtesy of Harry S. Truman Library.

President for less than three months when Franklin Roosevelt died on April 12, 1945, in Warm Springs, Georgia. Thirteen days later, Secretary of War Henry Stimson gave Truman his first full briefing on the status of the Manhattan Project.²

Within three weeks, on May 17, journalist William Laurence began to draft the new President's announcement of the bomb that had not yet been tested. Three months later, Truman himself would be framing public discourse about nuclear weapons with this announcement of the bombing of Hiroshima. During the first nuclear war, there had been no public opinion about the atomic bomb, because there was no public information. Public opinion was not possible until President Truman's announcement. But the ideas and assumptions that shaped American public opinion preceded the announcement; Truman's words were part of a process of discourse developed before and during the first nuclear war.

That war began in 1939. The first publications on nuclear fission occasioned a "war of the imagination" that attempted to fit nuclear power into established cultural patterns. But in the context of World War II, imaginations quickly focused in a "war of the laboratories," as American scientists engaged their German counterparts in a secret arms race to develop an atomic bomb. At the same time, as they tried to make sense of it, scientists and policymakers of the

American Manhattan Project developed a discourse of the atomic bomb. They invented both a bomb and an intellectual, institutional, and attitudinal framework that conditioned the way they used it and explained it. Both the Bomb and the discourse were revealed to the common people in Truman's announcement.³

Between 1939 and 1945, the uncommon people who knew about the Bomb created a story (partly history) to make sense of the Bomb by accepting some interpretations of nuclear weapons and rejecting others. By privileging some ideas, the American atomic elite created what Michel Foucault calls a "regime of truth." In a regime of truth, dominant groups exercise the power to control definitions, meanings, representations, and processes of inquiry so that their interests seem rational, natural, and inevitable; Jeff Smith describes this process as "the cultural production of common sense."⁴

The creation of common sense also requires the cultural production of nonsense (literally "non-sense"), because the criteria for inclusion are also criteria for exclusion. Privileging some ideas and ways of thinking subjugates others. These "subjugated knowledges" are those "knowledges that have been disqualified as inadequate to their task or insufficiently elaborated: naive knowledges, located low down on the hierarchy, beneath the required level of cognition or scientificity."⁵

This classification of knowledges is part of the process of discourse, which James V. Wertsch simply defines as "patterns of thinking and speaking." Wertsch suggests that our modes of discourse define who we are, how we know what we know, how we legitimate decisions, how we frame our own thought and communication, and how, consequently, we frame and understand the thought and communication of other people involved in the discourse. The discourse of the first nuclear war defined who would be heard (and how they would be heard) when the Bomb fell on America.

The people who would be heard after the first nuclear war were those who spoke in what Robert Karl Manoff calls "the statist voice." In an article on "Covering the Bomb: The Nuclear Story and the News," Manoff describes the development of two voices in discussions of nuclear issues:

The first, tolerant of the White House and War Department news leadership, was responsive to the events of the day and dominated the paper. In its reliance on official sources, in its preoccupation with policy, in its focus on government, it was basically *statist* in orientation. The second, largely reactive to the themes developed by the first, took root in the journalistic interstices—in adjectives, in analysis and editorials, in fugitive paragraphs within statist narrative. In its recourse to moral authority, in its dependence on unmediated expression, in its respect for individual opinion, it was basically a *civil* voice. Although the contrast between the two should not be over-

drawn, the former tended to be a journalism of achievement, the latter one of consequences; the former a journalism of causes, the latter of effects; the former a journalism of politics, the latter, of ethics.⁶

The statist voice in American nuclear discourse synthesized several established discourses of American culture. It combined discourses of nationalism and patriotism with elements of science and scientism; it mixed the language of military strategy with the assumptions of consumptionism. It built on the common sense of these discourses to produce its own common sense.

This common sense was not just expressed but also institutionalized in American culture. James Wertsch notes that “the institutional setting in which the debate is conducted usually plays an essential role” in determining which modes of discourse we use, and which modes are not acceptable.⁷ The authority of the institutions, and the authorities of the institutions, legitimize their pronouncements. The main institutional settings for nuclear discourse in the first nuclear war were government, the military services, some corporations, the academy, and, eventually, the press. Each of these institutions approached nuclear issues with different aims and assumptions, but, for the most part, they conducted their discussions in accents of the statist voice.

In the process, the institutionalized actors of the first nuclear war marginalized other established discourses that could have offered an alternative common sense of the Bomb. Clerics, for example, were not invited to be a part of the nuclear priesthood, so religious discourse entered mainly after the fact. Anarchists were not consulted in the construction of the national security state. The familial discourse of women (and men) was not considered relevant to the making of the atomic bomb. These civil voices, muted and not many in the first nuclear war, supply an important “perspective by incongruity” on the statist voice of nuclear discourse.⁸

Between 1939 and 1945, American culture made nuclear weapons thinkable; the scientists made them feasible; the War Department made them explode; and Harry Truman made them public. In three sections, this essay probes the cultural processes involved in making the atomic bomb, and the cultural production of common sense about the Bomb.

Fast New World: The War of the Imagination

American nuclear culture preceded American nuclear weapons. The assumptions of nuclear culture made it possible for Americans to understand the common sense of the Bomb, but improbable that they would see how that common sense was created. To begin to see the creation of that atomic common sense, they would need to look at the cultural history of the twentieth century, and



Enrico Fermi (center) and associates created the first sustained chain reaction at the University of Chicago laboratory. Los Alamos Photo Lab, courtesy of Harry S. Truman Library.

especially the culture of the 1930s. “The atomic age did not start suddenly last August,” said Harvard’s Harlow Shapley in early 1946. “It started quietly, back in the 1930’s, with the cyclotron [sic], with penicillin, with the sulfa drugs, with radar, electronics and jet propulsion, with rocketry. All these are part of the so-called atomic age—the age of rapid and new scientific discovery.”⁹

American culture became American nuclear culture by absorbing nuclear fission into its established cultural patterns. As physicists during the 1930s

discovered the properties and possibilities of the atom, the culture used its discourses of science and scientism, consumptionism and national power to make sense of them.

The first cultural conversation was conducted in the discourse of science. When James Chadwick discovered the neutron in 1932, there was not much cultural response. But when two scientists at the Kaiser Wilhelm Institute in Berlin split atoms of uranium in 1938, the repercussions were considerable. Scientists knew that, if you could split atoms, you could release the force which held them together—as much as 200 million volts of electricity. And if neutrons from split atoms split other atoms, a chain reaction would occur. By the end of the 1930s, physicists were excited by the possibilities that this release of energy suggested, and the 1939 Washington Conference on Theoretical Physics was abuzz with the news. During 1939, over 100 scientific papers on nuclear fission were published.

Journalists and popularizers began to make *common* sense of this scientific sense. The Associated Press reported on the conference, and soon newspapers and magazines began to explore the implications of fission. Their framing of the scientific discoveries of the Thirties was a second essential element of American nuclear discourse.

R.M. Langer's "Fast New World," which appeared in the July 6, 1940 issue of *Collier's Magazine*, exemplified the process of popularization, showing how science could be converted to scientism and consumptionism. Langer, a physicist from the California Institute of Technology, offered a vision of a world of free energy with

unparalleled richness and opportunity for all. Privilege and class distinctions and other sources of social uneasiness and bitterness will become relics because the things that make up the good life will be so abundant and inexpensive. War itself will become obsolete because of the disappearance of those economic stresses that immemorably have caused it.

"This is not visionary," Langer assured his audience. "The driving force is within our grasp. Reality is about to be handed from the scientists in their laboratories to the engineers in their factories for application to your daily life. It is a new form of power—atomic power."¹⁰

Langer's essay echoed the theme of the 1939 World's Fair, "Building for Tomorrow." That fair, described as "the dawn of a new day," illumines the imaginative context in which Langer's "nuclear utopianism" would make sense to Americans of the Atomic Age before the Bomb. The theme of the fair, "Building the World of Tomorrow," engendered fantasies of a future of peace and prosperity for a people whose recent experience included Depression, threats of fascism and communism, and the onset of war. Fair officials looked to planners

and technocrats—people skilled in science, social science, and technology—to lead the nation into a new, improved future of consumption and community. And the atom was part of the Fair's fare: the final section of the Fair's Production and Distribution focal exhibit asked "Will atomic power liberate gigantic new forces for man's use?" *Life* answered affirmatively, in a review of General Motors' "Futurama," a vision of the planned community of 1960, noting that "atomic energy is being used cautiously."¹¹

But the dawn of a new day of nuclear energy at the Fair depended, as did the Fair itself, on the ideas and institutions of earlier days. The Fair's futurism rested solidly on the past it hoped to transcend. As science fiction became science fact, for example, science reporting had become a prominent part of American journalism. The "Science Service" newspaper syndicate began providing copy to subscribers in 1921, and it added "Science News of the Week" on the radio in 1927.¹² "In the 1930s and 1940s the public was fascinated with the powers of science and technology," recalls Stephen Del Sesto. "New developments rapidly became news items of a sort that the press was glad to report to an eager public. Science stories sold copies, and it is not surprising that more than one reporter embellished the facts about developments in nuclear power."¹³

In this way, the new frontiers of science became the news frontier of journalism, and Americans began to believe in this "tradition of the new." "For most people," says Dorothy Nelkin, "the reality of science is what they read in the press. They understand science less through direct experience or past education than through the filter of journalistic language or metaphor."¹⁴ For most people, reporting like Langer's "Fast New World" represented the reality of science. It reinforced their faith in science, or "scientism," more than it increased their understanding of science itself.

The increased public acceptance of the scientist as an American authority appeared in advertising as well. Beginning in the 1920s, and increasingly in the 1930s, the scientist in white lab coat provided objective assurance to consumers that one product was "scientifically" superior to its competitors. A 1928 *Nation* editorial lamented that "a sentence that begins with 'Science says' will generally be found to settle any argument in a social gathering, or sell any article from toothpaste to refrigerators." The "scientific" slant of journalism and advertising, therefore, prepared readers for the atomic enthusiasm of promoters like Langer and, later, Harry Truman.¹⁵

The "newness" of Langer's new world also had roots in the New Era of the 1920s. The utopian promise of abundance recalled the affluence of the Prosperity Decade and the longstanding American belief that "economic enterprise drawn by the engine of technical improvement was the very essence of human freedom."

And in 1940, when 10 percent of Americans were still unemployed, the promise of renewed prosperity was especially attractive. But two new elements appeared in Langer's scenario: a new isotope and a New Deal. Like a *deus ex machina*, uranium-235 provided the power for Langer's future, while the power of the government promoted research and development, and constrained those

who might amass uranium for bombs. The New Deal experience helped prepare Americans for massive involvement of the national state in economic and industrial affairs, just as World War II would prepare Americans for postwar military mobilization, a permanent war economy, global power, and the legitimacy of the statist voice in world affairs.¹⁶

The virtual inevitability of Langer's "Fast New World" and of other nuclear utopias betrayed an uncritical acceptance of the concept of "cultural lag." Sociologist William Ogburn coined the term in the early 1920s to suggest that the tensions of modern society resulted, to some extent, from the fact that different elements of society changed at different rates. More specifically, Ogburn suggested that the material and mechanical sectors of modern society changed more rapidly than social institutions, and that culture help people adjust to these changes. But this social construction of cultural lag constituted a surrender of initiative to the people who manufactured both things and the desire for things. It fit perfectly with commodity scientism. It presumed that adaptation to mechanical processes and products would remedy social problems, and it omitted the option of resistance or revolt against so-called "progress." When the press adopted the idea of cultural lag, assuming that technology was the cutting edge of history, it gave the imprimatur of science and social science to a particular world view, a world view which complemented the even more popular idea of "progress."¹⁷

Although the state had begun to explore the possibility of atomic bombs by the time that Langer published his "Fast New World," the statist voice of nuclear discourse had not yet fully developed. But neither did Langer's article articulate a civil voice, speaking to readers as citizens; instead Langer spoke to his readers as potential consumers, as people who might buy into the dream that he was offering. When Harry Truman announced the Bomb, he would echo this consumptionist voice of nuclear discourse. After the war, in the service of the state, this consumer capitalist voice would develop new nuances as "Atoms for Peace." But in the "Fast New World" of 1940, it was still just a consumer fantasy for readers deprived by Depression.

Images of war and a war system were essential elements of the emerging nuclear discourse. The American experience of scientific discovery and scientific authority, plus the technological and consumptionist utopianism of the Thirties, also set the context for nuclear power. Images of war, and of world war, preceded, obviously, the *second* world war. Both the experience and the aftermath of "the Great War" conditioned responses to the Second World War.¹⁸ World War II took place within a war system, both national and international. That system assumed that, in a context of unrestricted national sovereignty, war was a reasonable way of settling conflicts. It assumed international rivalry, and expected national responses to that rivalry. During World War II, as Americans developed and deployed atomic bombs and a framework of discourse for talking about them, they also developed analytic and narrative strategies for talking about war generally, and these strategies affected the thinking of Harry Truman's

eventual audience, and of postwar Americans concerned with issues of war and peace. As Jean Bethke Elshtain suggests, “war stories are deeded to us as texts of a particular kind. . . . Stories of war and politics structure individual and collective experience in ways that set the horizons for human expectations in later epochs.” Stories about aggression and appeasement, about defense and duty, about democracy and totalitarianism, about Munich and Pearl Harbor, about neutrality and preparedness, about military science and technology, about research and development, about Dresden and Hiroshima all affected the cognitive map of the American people at the end of one war, and the beginning of a Cold War. As Elshtain says, citing Nancy Huston, “War imitates war narrative imitating war.”¹⁹

Images and stories of the first nuclear war also preceded the actual fighting and the discovery of the Bomb. From the time of the discovery of radium, radioactive substances had been linked with protean images of alchemy and science, progress and doomsday, potency and mastery of the secrets of life. In military discourse, they had also been connected with cultural images of the superweapon that would end all wars.²⁰

In these images were the evolving grammar and vocabulary of the statist voice of nuclear discourse. The bombs would be wielded in the service of the state. They would be scientific and technical marvels, the product of state-supported research. They would efficiently decimate the enemy, and drive him to surrender. They might usher in an era of peace, and an end to the war system which nurtured them.²¹

World War II transformed these figments of the American imagination into facts. But the earlier fictions and prophecies—themselves framed by core values in American culture—created a framework for the social construction of the Bomb’s reality. And the facts depended on the frame. Both Harry Truman and the American audience for his announcement had been framed by the stories that served as both text and context for the Atomic Age. When the Bomb fell on them in August of 1945, they had been prepared.

Projecting Manhattan: The War of the Laboratories

Some of the common sense of the Bomb was created by a most uncommon group of men, the atomic physicists—including many eventual Nobel laureates—who imagined, designed, and developed the Bomb. They thought and acted in culturally patterned ways conditioned both by the history of science and the history of war. The scientists made sense of the Bomb first as science; second, as technology; and third, as weapon. The Bomb at birth, therefore, was invested with the authority of science, the pragmatism of technology, and the efficiency of military might. While few Americans fully understood the physics of the Bomb, they did respond to the cultural packaging that the scientists had also constructed in the Manhattan Project.

While R.M. Langer envisioned a phenomenal future, the U.S. government was more cautious, authorizing only \$6000 for the first year's research on nuclear fission. The Advisory Committee on Uranium, which had been established after Einstein's letter to President Roosevelt, awarded no sizable contracts until after the fall of France in June 1940. Even then, atomic fission seemed a remote possibility compared to projects like radar, and no bomb construction project existed as late as the summer of 1941.

On December 6, 1941, the United States decided "to go all out on atomic bomb investigations." On that day, Vannevar Bush and James Conant called a meeting of the Uranium Committee to announce that President Roosevelt had supplied several million dollars for their work. They also made plans to divide up the work of inventing an atomic bomb. The following day, another day of infamy, the Japanese bombed the threatening fleet at Pearl Harbor and infused Americans with the "Pearl Harbor Syndrome," the fear of a fatal bolt from the blue that conditioned so many worst-case scenarios of postwar American strategy. On December 11, Germany declared war on the United States, and American participation in the first nuclear war accelerated. The scientists worked in a world at war, and the text of the Bomb would be read in the context of World War II.²²

In designing the Manhattan Project, the government used its authority—derived from cultural assumptions about war and politics and nationalism and patriotism and science and service—to create a scientific subculture of American nuclear culture. Within the laboratories established by the Manhattan Project, the day-to-day work was scientific. But the laboratories themselves were also a laboratory for the social construction of science, an experiment on the relationship between scientific discovery and cultural discourse. In the Manhattan Project, the government acted to ensure that only approved members of this scientific and military subculture would discuss the Bomb and shape the discourse.

Work on the Bomb proceeded on three fronts. At first, attention centered on the Chicago Metallurgical Lab (a code name for the project at University of Chicago), where Enrico Fermi and his associates (including Leo Szilard) created the first sustained chain reaction on December 2, 1942.²³

Fermi's breakthrough shifted the main focus of the American bomb project from science to technology. On the second front, at Oak Ridge, Tennessee, and Hanford, Washington, workers attempted to manufacture enough pure U-235 or plutonium to build a bomb. And at Los Alamos, New Mexico, J. Robert Oppenheimer led the third contingent in the effort to design and build the casing and trigger mechanisms for the bomb.

After September 1942, the Manhattan Project (as it now was called) was under the direction of General Leslie Groves, an expert organization man who had supervised the construction of the Pentagon (at that time the world's largest building). Groves could get things done on time, in part because he lived up to his motto: "When in doubt, act!" In the Manhattan Project, Groves needed to

coordinate scientists' theories with engineers' plans and industrial production. Arthur Compton, J. Robert Oppenheimer, and others recruited the scientists, while Groves approached Du Pont, General Electric, Westinghouse, Stone & Webster, Allis-Chalmers, Tennessee Eastman, Kellogg, Chrysler, Carbon and Carbide Chemicals, and other corporations to participate in this emerging military-industrial complex.²⁴

By June 1944, the factories at Oak Ridge could send tiny quantities of bomb-grade uranium to Los Alamos. The first plutonium arrived from Hanford in February 1945. Bomb quantities of both substances reached the Los Alamos labs in the summer. The plutonium formed the core of an implosion device so complicated that it required a test at the Alamogordo bombing range on July 16, 1945. The uranium was packed into a simpler gun-type bomb and tested on Hiroshima. The Project scientists had succeeded in producing a weapon that brought the war to a dramatic conclusion.

But the final production of the atomic bomb was less important as cultural history than the process of inventing it, because the *process* conditioned the



General Leslie Groves, who directed the Manhattan Project after September 1942, and scientist J. Robert Oppenheimer. Copyright unknown, courtesy of Harry S. Truman Library.

unthinking assumptions of the scientists and of the American audience in the postwar world. The scientists of the Manhattan Project collaborated with the government in the invention of atomic bombs, but they also collaborated with each other in inventing institutional and ideological contexts that constrained their discourse about nuclear issues. They bestowed this legacy to the American citizenry on August sixth of 1945.

What motivated these talented scientists to do war work? How would they eventually explain their work to the public? How would they tell the story of the Bomb and the Bomb project? Robert Oppenheimer recounted that, although many scientists had great misgivings,

there was another side to it. Almost everyone realized that this was a great undertaking. Almost everyone knew that if it were completed successfully and rapidly enough, it might determine the outcome of the war. Almost everyone knew that it was an unparalleled opportunity to bring to bear the basic knowledge and art of science for the benefit of his country. Almost everyone knew that this job, if it were achieved, would be a part of history. This sense of excitement, of devotion and patriotism in the end prevailed.²⁵

As this summary suggests, science itself would not have been enough to involve all of these scientists in this research. Instead, the discourse of science was supplemented by the discourses of nationalism and patriotism, and a discourse of war, as Project members worked to build a Bomb and to frame the statist voice of nuclear discourse.

Many of the scientists evinced the passionate idealism of anti-Fascists—including those who, like Fermi and Szilard and Bohr and Teller, had escaped from Europe's Fascism—working mainly to deter the Germans from using an atomic bomb by threat of mutually assured destruction. “At Los Alamos during World War II,” recalled Joseph O. Hirschfelder, “there was no moral issue with respect to working on the atomic bomb. Everyone was agreed on the necessity of stopping Hitler and the Japanese from destroying the free world. It was not an academic question—our friends and relatives were being killed and we, ourselves, were desperately afraid.” Even many pacifists participated in the Project.²⁶

These scientists put their idealism to work, not by individual acts of conscience, but by coordinated national service under the supervision of the United States Army. They justified their action with a discourse of deterrence, and a utilitarian ethic of least pain. They embraced essentially a just war ethic: a legitimate authority, the United States government, using the criterion of proportionality, had decided that the ends (a world freed of Fascism) justified the

means (a world war and a Bomb project). They chose to serve their country by offering their professional skills. Their choice to work on the Manhattan Project was not at all uncommon; many citizens sacrificed for the war effort. What Studs Terkel would later call “the good war” was good, in part, because of its ethical intentions.

Still, as scientists, they began with science and conceptions of the “art of science.” Among the assumptions that inspired and imbued the work of the physicists was a conception of science as a commitment to advance knowledge either for its own sake or for the public good. Many of the early atomic scientists appreciated the aesthetic aspects of scientific inquiry, and the “virtuosity values” that complemented other values in the quest for the Bomb.²⁷ Spencer Weart shows that Robert Oppenheimer, for example, liked

the way science could give value to mortal life. There was the straightforward craftsmanship of daily work, and the ‘clear and well-defined community whose canons of taste and order simplify the life of the practitioner,’ and beyond all that, physics itself, the ‘brilliant and ever-changing flower of discovery.’ Such beauty and order, said Oppenheimer, in the end sustained the life of scientists like himself.²⁸

Others like Niels Bohr, for example, understood science as “a profoundly political force in the world,” designed “to set men free.”²⁹

This conception of the art of science assumed the existence of a worldwide scientific community, personified at Los Alamos by luminaries like Oppenheimer and Fermi and Bethe and Teller. Young Robert Wilson experienced “the Oppenheimer charisma,” for example, and felt almost transcendent in their communal work. Warm personal experiences permeated the Project, making the development of a death-dealing weapon a catalyst for close friendships and intimate relations. Wilson claimed, as have other historians, that “the *esprit de corps* that [the scientists] developed there played no small role in their success.” There was excitement in collaborative discovery, and in the curiosity that was satisfied by this intense work.³⁰

But virtuosity and excitement in the scientific community was still science, and the focused abstract thinking of the scientists on the Project obscured other ways of thinking and feeling about what they were doing. The Trinity test at Alamogordo brought this home to Phillip Morrison, who felt the heat of the explosion at a distance of ten miles. “The real point,” he recalled, “was that sense of direct intimate contact through the warming of the skin. But of course we were all awed and silenced by the extraordinary power of this thing which we had understood in the numbers but not in experience.” Hiroshima also made Hans Bethe aware of the limitations of “knowing by the numbers”: “We had calculated beforehand how much destruction there would be. But seeing it on the film,

seeing it more or less directly, was so much more terrible.” Despite the scientists’ eventual awareness of the intimate and experiential aspects of the Bomb, they had produced the Bomb itself, and reproduced a way of thinking—distanced, abstract, quantitative—that would dominate nuclear discourse in the second nuclear war.³¹

The Manhattan Project put this scientific discourse in conversation with a discourse of nationalism and patriotism. Robert Oppenheimer even volunteered to work in military uniform. Like most intellectuals during the war, the scientists deferred to the claims of the national government, and to the concentration of power in the presidency. Like many others who worked in intelligence or propaganda, they performed “the ‘intellectual’ work of wartime.” From the beginning, notes Richard Rhodes,

scientists were summarily denied a voice in deciding the political and military uses of the weapons they were proposing to build. . . . A scientist could choose to help or not to help build nuclear weapons. That was his only choice. The surrender of any further authority in the matter was the price of admission to what would grow to be a separate, secret state with separate sovereignty linked to the public state through the person and by the sole authority of the President.³²

They would serve the state as specialists, in a culture of professionalism rooted in a discourse of specialization.

But such surrender of authority was not inevitable. Leo Szilard chafed at these restrictions on the civil voice. In 1942, he explained his thinking about the chain of command and responsibility:

We may take the stand that the responsibility for the success of this work has been delegated by the President to Dr. Bush. It has been delegated by Dr. Bush to Dr. Conant. Dr. Conant delegates this responsibility (accompanied by only part of the necessary authority) to [Dr. Arthur] Compton. Compton delegates to each of us some particular task and we can lead a very pleasant life while we do our duty. We live in a pleasant part of a pleasant city, in the pleasant company of each other, and have in Dr. Compton the most pleasant ‘boss’ we could wish to have. There is every reason why we should be happy and since there is a war on, we are even willing to work overtime.

Alternatively, we may take the stand that those who have originated the work on this terrible weapon and those who have

materially contributed have, before God and the World, the duty to see to it that it should be ready to be used at the proper time and in the proper way.³³

Most of his scientific colleagues, however, did not share Szilard's reservations, and they turned singlemindedly to the particular duties and tasks set before them—not by God or the World—but by Arthur Compton and the state.

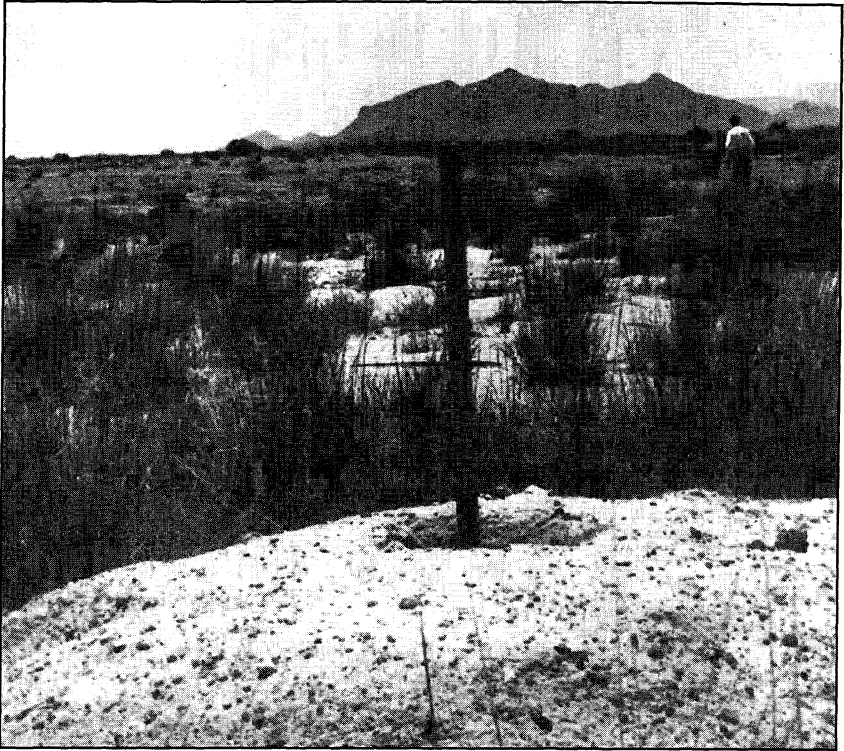
The experience of Danish scientist Niels Bohr illustrated another alternative to the statist voice. Bohr had thought about the implications of nuclear weapons throughout the war, and thought that more people—including the Russians—should share in a civil discourse about them. In 1944 he approached both Franklin Roosevelt and Winston Churchill to argue for both international sharing and international control of atomic energy. But the mission ended in failure, as indicated by the secret aide-memoire from the 1944 Hyde Park conference. The President and Prime Minister recommitted themselves to secrecy and monopoly, and to possible use of the bomb on Japan (Germany was not mentioned). They also agreed that “enquiries should be made regarding the activities of Professor Bohr and steps taken to ensure that he is responsible for no leakage of information particularly to the Russians.” Atomic internationalism would be no legitimate part of the discourse of the first nuclear war.³⁴

Because the scientists worked under the War Department of a nation at war, the military imagination also shaped the discourse of their first nuclear war. The War Department understood the Manhattan Project as a potential manufacturer of munitions to be used in the war. General Leslie Groves wanted to run the project with military efficiency, and he wanted to keep the project secret, so that the nation's enemies could not benefit from the research and development.³⁵

The scientists accepted the essential assumptions of General Groves and the emerging national security state. They assumed and accepted the compartmentalization of knowledge and the need for secrecy and spying. Because it was illegal for the U.S. government to censor mail, the scientists all volunteered to submit their mail to the censors unsealed (security breaches would be noted, and the letters would be returned for revision), and to permit their incoming mail to be screened. They did not agree to be spied upon, but security agents watched the scientists carefully.³⁶

The secrecy of the Project was even tighter outside the Manhattan Project's installations, as the government curtailed the circulation of news about nuclear issues. The inception of the Manhattan Project had required a certain amount of deception. From 1940 to 1945, the American imagination of nuclear power was tightly circumscribed, as the secrecy of the Manhattan Project led to a ban on publications dealing with uranium.

The news media cooperated in the censorship of nuclear news. Words like “uranium” and “atomic energy,” and places like Los Alamos and Oak Ridge and



"Ground Zero" was marked by a stake in the New Mexico desert. Los Alamos Photo Lab, courtesy of Harry S. Truman Library.

Hanford, were omitted from the nation's news. The Manhattan Project became, in the words of one postwar journalist, "the greatest story never told." As Robert Karl Manoff suggests, "The American nuclear experience has been shaped by inadequate knowledge and constrained inquiry. The entire nuclear regime, in fact, is both an organization of violence and an organization of knowledge. . . . [It] has its own epistemological structure, its own set of possibilities for acquiring and disseminating knowledge. This structure was designed by the Manhattan Project, strengthened by the Hiroshima bombing, and cemented every year since."³⁷

Only science fiction fans and the scientists of the Manhattan Project could play with ideas about the atom. And government censors scrutinized both of these groups as well. When the March 1944 *Astounding Science-Fiction* published Cleve Cartmill's "Deadline"—which described a lone agent thwarting the Axis use of an atomic bomb—government agents visited both Cartmill and the magazine's editor, John Campbell. They demanded that the magazine stop publishing atomic bomb stories; Campbell replied that the genre was so familiar that omission would cause more suspicion than the stories themselves.³⁸

These assumptions of secrecy and security would be the foundations for postwar discourse about nuclear weapons. Secrecy protects the unspoken assumptions of a discourse, and constrains what may be spoken and what the public may hear. Among the assumptions unspoken to the American public until the end of the war: 1) The atomic bomb might contribute to winning the war, which is the first purpose of the United States government; 2) All ideas and inventions concerning the atomic bomb belong to the United States government and, more specifically, to the Army. With the possible exceptions of England and Canada, no other nation may be trusted with this knowledge; 3) Project workers should only know enough about nuclear issues to contribute efficiently to the design and production of the superweapon; 4) The primary nuclear issues are management and technique. Ethical and political questions adversely affect efficiency; 5) Neither Congress nor the American people need to know what is being done in their name. Silence is a way of speaking, and Americans learned a lot—especially deference—from what they were not taught in the Manhattan Project.

With the compartmentalization of knowledge in the Manhattan Project came a compartmentalization of responsibility. Specialization had technical benefits, but social costs. John von Neumann taught Richard Feynmann “that you don’t have to be responsible for the world that you’re in.” Most other scientists were, according to Laura Fermi, “so involved with their work and under such pressure of time that they gave little thought to what later became known as the `social implications of the bomb.’”³⁹

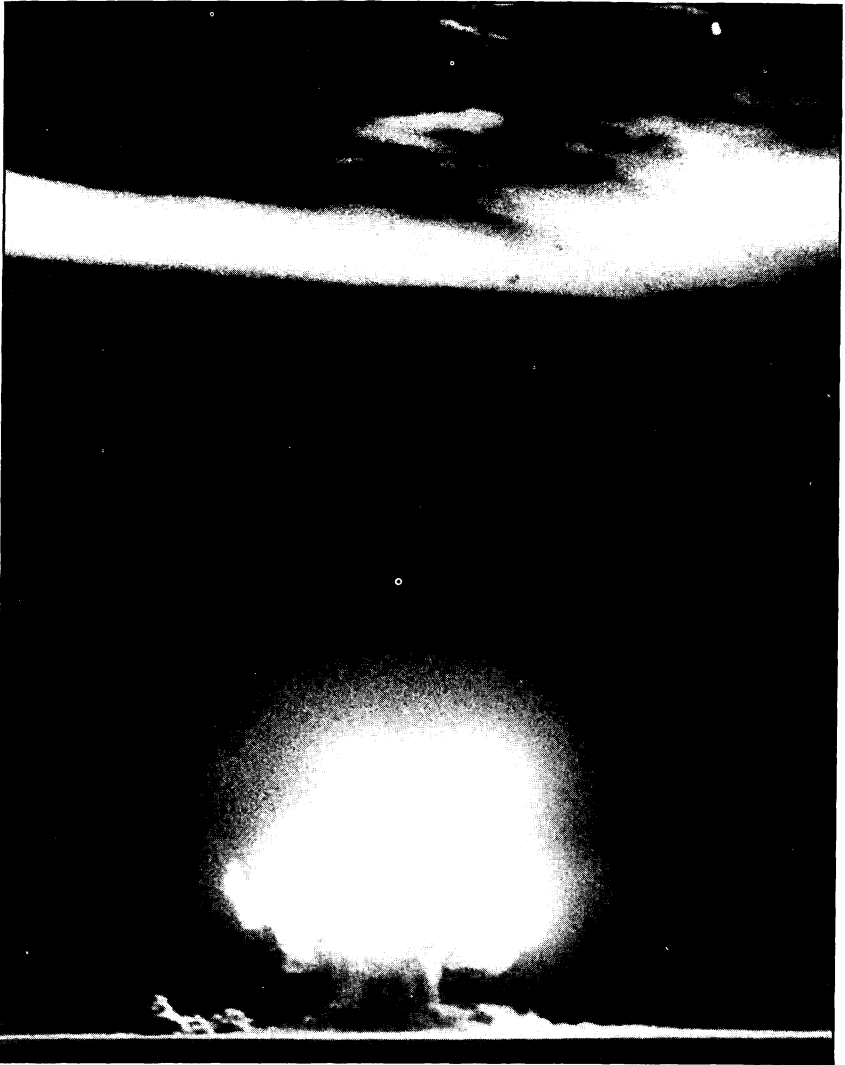
The Trinity test at the Alamogordo bombing range awakened some of the social considerations that had been suppressed in the building of the Bomb. Until April 1945, the first nuclear fireworks had been planned for the Fourth of July, but that proved impossible. Twelve days later, therefore, the scientists mounted the Bomb on a tower in an area of the desert called Jornada del Muerte (Journey of Death), and detonated it. The result was spectacular: although they had expected an equivalent of 500 tons of TNT, the blast generated almost 20 kilotons, was visible for 2500 miles, and could be heard at a range of 50 miles.

Robert Oppenheimer first recalled a verse of the Bhagavad-Gita:

If the radiance of a thousand suns
Were to burst into the sky,
That would be like
The Splendor of the Mighty One—

But as the mushroom cloud rose, he also remembered the line “I am become Death, the shatterer of worlds.” Kenneth Bainbridge responded more prosaically, saying “Now we are all sons-of-bitches.”⁴⁰

Observers mixed metaphors of creation and destruction, of the beginning and end of the world, that would characterize so much later reporting of the Bomb.



The first atomic explosion created by man blasts the desert near Los Alamos in a test at 5:30 a.m. on July 16, 1945. Courtesy of U.S. Army Military History Institute.

William Laurence, the *New York Times* reporter assigned to publicize the Project, recalled that “it was like the grand finale of a mighty symphony of the elements; fascinating and terrifying, uplifting and crushing, ominous, devastating, full of great promise and great foreboding. . . . On that moment hung eternity. Time stood still. Space contracted to a pinpoint. It was as though the earth had opened and the skies split. One felt as though he was privileged to witness the birth of the World—to be present at the moment of Creation when the Lord said: `Let

there be light.” “I am sure,” said George Kistiakowsky to Laurence, “that at the end of the world, in the last millisecond of the earth’s existence, the last human will see what we saw.”⁴¹

Later that night, as scientists celebrated at Oppenheimer’s house, Richard Feynmann found Robert Wilson “just sitting there moping.” In 1944, Wilson had called a meeting to discuss “The Impact of the Gadget on Civilization,” but was disappointed by the unimaginative discussion. That night, Wilson told Feynmann that “it’s a terrible thing that we made.” And Feynmann recalls that, in contrast, “what happened to me—what happened to the rest of us—is we *started* for a good reason, then you’re working very hard to accomplish something and it’s a pleasure, it’s excitement. And you stop thinking, you know; you just *stop*. So Bob Wilson was the only one who was still thinking about it, at that moment.”⁴²

There had been other occasions to think about it, and about the changing purpose of the project. In September 1944, the special American Army forces of Project Alsos discovered that the Germans had virtually surrendered in the war for the atomic bomb. Scientist Joseph Rotblat concluded that, absent the threat of a German bomb, he could not conscientiously continue on the project, asked permission to leave Los Alamos, and returned to England. But a technological imperative seemed to drive his colleagues; they wanted to see how it would work, both technically and politically. This is what Oppenheimer meant when, at a later date, he said that “when you see something that is technically sweet, you go ahead and do it and you argue about what to do about it only after you have had your technical success. That is the way it was with the atomic bomb.”⁴³

Some of the scientists worked, and continued to work on the Bomb, because they hoped that its enormity would bring world peace and/or world government. Others could see peaceful applications of their research; at the Chicago Met Lab, scientists became so optimistic that a colleague moderated their nuclear utopianism by advising them not to “talk like magazine ads for postwar plastics.”⁴⁴

At the Chicago Metallurgical Lab, where the pressure in 1945 was not as great as at Los Alamos, more scientists had begun to consider the social implications of the bomb, the longterm chain reaction of their chain reaction. Leo Szilard persuaded Albert Einstein to write a second letter to President Roosevelt, but it did not reach him before his death. Szilard also tried to reach President Truman in May, but was referred only to James Byrnes, who preferred more orthodox views: the bomb was a weapon, and weapons should be used to win the war. Nobel laureate James Franck headed a Committee on Social and Political Implications which warned in a June 11 letter that “the development of nuclear power not only constitutes an important addition to the technological and military power of the United States, but creates grave political and economic problems for the future of this country. . . . If the United States were to be the first to release this new means of indiscriminate destruction upon mankind, we would sacrifice public support throughout the world, precipitate the race for armaments, and prejudice the possibility of international agreement on the future control of such

weapons.” For humanitarian and diplomatic reasons, Franck’s committee proposed a noncombat demonstration of the atomic bomb. The Interim Committee, a group of scientists and policymakers convened to plan deployment of the Bomb, considered this possibility, but dismissed it. They feared that a demonstration might fail, that the Japanese might expose American POWs to the explosion, or that the Japanese might be able to harden their defenses against such an announced explosion.⁴⁵

In July, Leo Szilard tried to circulate a petition to President Truman that warned against use of the atomic bomb because “a nation which sets the precedent of using these newly liberated forces of nature for purposes of destruction may have to bear the responsibility of opening the door to an era of devastation on an unimaginable scale.”⁴⁶ General Groves classified the petition, and prevented its circulation. When, on August 6, Szilard asked the Army to declassify his protests against use of the Bomb on Japan so that he could publish them, the Army refused and threatened to prosecute him under the Espionage Act if he released them himself. Szilard’s petitions, the Army said, would suggest to the American people “that internal divisions and fundamental differences in opinion disrupted the development of the [Manhattan Project’s] work.” Such a conclusion, the Army claimed, might damage “the interest or prestige of the nation or governmental activity.”⁴⁷ The social construction of *common* sense required the constriction of dissent. The few varying voices of the Manhattan Project would be subsumed in the statist voice.

Most of the scientists of the Manhattan Project did not engage in this civil discourse about the Bomb. Many of them had no moral qualms, and they accepted the specialization and division of labor that characterized American culture and the Manhattan Project. Oppenheimer, for example, told members of his staff that people in more influential positions were considering the politics of the Bomb. And when the Scientific Panel of the Interim Committee presented its report on a possible demonstration of the Bomb, they flirted with the civil voice, noting “we are among the few citizens who have had occasion to give thoughtful consideration to the problems during the past few years.” But they ended by ceding the superiority of specialization, admitting that “we have, however, no claim to special competence in solving the political, social, and military problems which are presented by the advent of atomic power.” There were no specialists in ethics in the Manhattan Project.⁴⁸

The fact that most scientists had been diverted from the social and moral consequences of their work explains, according to Laura Fermi, “the outburst of words, feelings, emotions and expressions of a sense of guilt in Los Alamos right after Hiroshima. Suddenly, to the amazement of us wives, our husbands talked of nothing else but the bomb. They seemed to carry on their shoulders the responsibility for the horror done in Japan and for the evils that atomic energy might bring anywhere in the world in the future.”⁴⁹ Like the Japanese physicist who survived Hiroshima, many of them seemed to believe that “Auschwitz showed us how cruel man can be to man . . . but Hiroshima showed us how cruel

man can be through science, a new dimension of cruelty.”⁵⁰ This sense of scientific responsibility resulted in the formation in November 1945 of the Federation of Atomic Scientists, and in a frustrating crusade to educate the public about atomic energy by demystifying the discourse, including the illusion of special competence, that they had created.

Even more important for the Atomic Age, however, was the institutionalization of statist science during the first nuclear war. The Manhattan Project served as a model for state-subsidized scientific research and development. “Considering the ever-increasing scale of technological-production systems, the successful mobilization of invention and science before and during World War I, and government success with the TVA, it seems, in retrospect, almost inevitable that the government and the military, two of the century’s most rapidly expanding and powerful bureaucracies, should become involved in the twentieth-century’s most characteristic activity—technological-system building.” By the end of the first nuclear war, the inventions of radar, the proximity fuse, the atomic bomb, the ballistic missile and the electronic computer showed that “scientific research had become a major element in national power.”⁵¹

So the Manhattan Project provided not just the bombs that punctuated World War II, but the intellectual and institutional infrastructure for American preparations for World War III. Intellectually, the Project provided a precedent for scientists to work on weapons of mass destruction; it justified their work in the name of national security, and it rewarded them with career prestige and security. It also created institutional ties between the military services and academic institutions such as Harvard and Berkeley and MIT that would lead to state-subsidized science research in subsequent years.⁵² Institutionally, too, it left national laboratories at Argonne, Oak Ridge, and Los Alamos that would be supplemented in the postwar years by Brookhaven, the Berkeley Radiation Lab, Sandia, the Knolls Atomic Power Laboratory, and Bettis Laboratories. The Manhattan Project also established the state’s partnership with private corporations to develop and produce nuclear weapons.⁵³ In short, it incorporated American culture into a “gadget” that Harry Truman would explain to the American people.

Framing the Bomb: The War of the Words

On May 17, before any bombs had been tested, journalist William Laurence wrote a “Tentative Draft of Radio Address by President Truman” to announce the atomic bomb. In 1945, General Groves had hired Laurence to publicize and promote the atomic bomb for the Army, enlisting science journalism and its scientism in the service of the state. Groves had passed the Laurence draft on to Stimson, who chaired a committee to adapt the announcement for Truman.⁵⁴

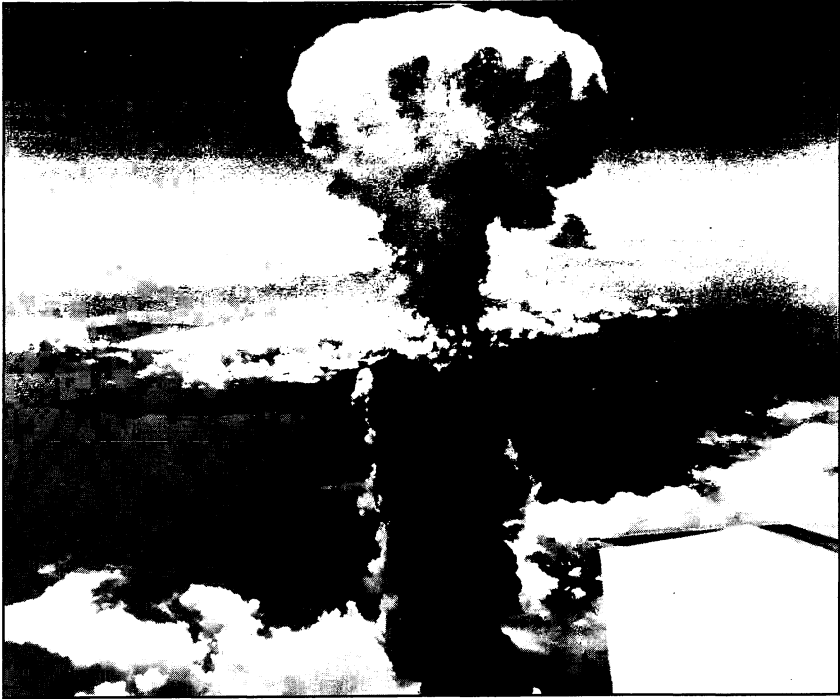
Because Laurence also prepared other stories on the first nuclear arms race, and because the War Department released them to the press on August 7, his language shaped the early discourse of the Atomic Age. A science reporter for the *New York Times*, Laurence had written one of the first newspaper accounts of atomic fission. At the February 1939 convention of the American Physical Society, he attended an informal session in which Enrico Fermi and Niels Bohr discussed the possibilities of fission. Laurence recalled his response: "I remember saying to myself, 'This is the Second Coming of Prometheus, unbound at last after some half a million years, bringing down a fire from the original flame that had lighted the stars from the beginning.'" The next day, in the *Times*, he enthused about this "most important step yet made by science toward the transmutation of the elements and the utilization of vast stores of energy locked up within the nuclei of atoms."⁵⁵

Laurence saw science as the religion of the future, and science writers as Moses leading the people into the Promised Land. In a 1940 *Saturday Evening Post* article, he had compared the atomic scientists with Columbus discovering "a miraculous new continent of matter, as rich and wonderful in its way as the Americas proved to be years after their discovery." Mixing metaphors in his excitement, he also saw them leading Americans to "the Promised Land of Atomic Energy." Influenced by the scientism of earlier science reporting and science fiction, Laurence fused apocalyptic and millennial themes, and metaphors of magic and miracle, with American technological utopianism. American public opinion about the Bomb would be shaped, therefore, by a master of public relations who could fuse the various discourses about nuclear fission.⁵⁶

Truman delivered Laurence's announcement on August 6. With Truman's announcement, the atomic bomb entered the public domain. His language, and its assumptions, introduced Americans to the Atomic Age, and taught them how to think about the Bomb. The American people were presented with a *fait accompli*, and a way of framing that fate.

The announcement revealed the destruction of Hiroshima and supplied some background for the bombing, including the Anglo-American collaboration, the "battle of the laboratories," the location of production sites, and the determination of the government to use the Bomb to "obliterate more rapidly and completely every productive enterprise the Japanese have above ground in any city." Truman also announced his intention to seek legislation for the creation of an Atomic Energy Commission to regulate atomic power in the United States. And he explained that the wartime security system would continue in peacetime; while the United States would share the basic science of atomic energy, it would protect its production secrets.⁵⁷

Laurence had laced the announcement with superlatives. "What has been done is the greatest achievement of organized science in history," the President proclaimed. "It is an atomic bomb. It is a harnessing of the basic power of the universe. The force from which the sun draws its powers has been loosed against



The mushroom cloud over Nagasaki. United States Army Air Force, courtesy of Harry S. Truman Library.

those who brought war to the Far East.” The Bomb was “the greatest destructive force in history.”²⁵⁸

Even as Truman’s announcement revealed some facts to the American public, it concealed other information, especially the contingency of the Bomb: the process of decision-making, alternate assessments of the military situation, and questions about the need to use the Bomb at all. The decision to drop the bomb was remarkable, not just for its outcome, but for the kinds of questions and concerns that dominated the discussion, and for the bureaucratic politics that conditioned that discourse. When Germany surrendered, American policymakers were forced to consider, explicitly or implicitly, several questions: should bombs designed for Germany be used on Japan? did the military situation warrant an atomic attack? would a demonstration of nuclear power have sufficed to end the war? did the bombs have more than military purposes? Within the government, there were different answers to these questions. But insofar as Truman, in his statement, provided answers, they were answers only to the questions that he wanted considered.

In the end, the Hiroshima bomb was dropped for five interrelated reasons: to end the war quickly, to save American lives, to avenge Pearl Harbor, to justify the expense of the Manhattan Project, and to intimidate the USSR. The coincidental conjuncture of these objectives made other alternatives either unthinkable or less compelling in a context of total war. But Truman's statement made the alternatives and reservations not just impolitic, but invisible to the American audience, as he condensed the complexity and omitted the alternatives.⁵⁹

The atomic bomb was new to the American people that August, but Truman did not need a new language to explain it, because he could rely on patterns of thought and practice established before and during the war. Despite the dearth of information about nuclear weapons, the progress of the war had created a cultural context in which Americans would approve the use of atomic bombs as standard operating procedure. Without knowing about nuclear weapons, Americans had considered many of the issues nuclear weapons would raise. As Spencer Weart observes, "The public . . . could only understand the news in terms of what they already had in their heads." As usual, the newness of the news depended on what was old and established. Truman, therefore, could introduce the Bomb to the American people in the conventional language of war, and, to a great extent, in the language of conventional war.⁶⁰

In the conventional language of war, Truman could assume, for example, the identification of his audience with the American state. In his brief statement, he used the words "we," "our," and "us," seventeen times, identifying the work of a small group of politicians, scientists, and technicians with the will of the nation. He thus continued a tradition of discourse well-entrenched in the Western world, and especially emphasized in a world at war. "In the modern world," as Jeff Smith points out, "society tends to be thought of as a 'we' that is represented as a **whole** by the state. . . . In this political environment, in which it is always this 'we' that is acting, it becomes very difficult to entertain the idea that 'our' actions could be evil and wrong. They are, after all, seen not as mere actions, but as expressions of what 'we' fundamentally are." In this way, the presidential pronoun "we" enlists the virtue of the citizenry in the cause of the state, since the citizens do not understand themselves as evil, and find it difficult to imagine themselves collectively committing crimes that individually they would be incapable of. It also tends to obscure the particular people responsible for the actions of the state, and the particular parts of the collective "we" which benefit most from the actions taken rhetorically in the name of all.⁶¹

At the same time, the statist voice tends to absolve the citizenry of its own complicity in the work of the state. The statist "we" contravenes American individualism and its emphasis on intentionality; if *I* did not *intend* to act in a certain way, then, the "American I" would contend, I am not responsible for the action. Because World War II was a "good war," the American people accepted many sacrifices in the cause of victory. One of these sacrifices was taxation. Before World War II, although there was an income tax, only four million people

made enough money to be subject to taxation. By the end of the war, thirty million Americans were paying taxes, the rates had increased, and the system of withholding and quarterly estimates had institutionalized the incremental collection of citizens' money for the national interest.⁶² Many of the Americans who heard or read Truman's announcement of the Bomb had paid taxes which paid for the \$2 billion Manhattan Project. But few of them were encouraged by Truman's framing of the Bomb to think "I paid for that bomb; I am responsible for its use." Instead, they probably assumed that the "statist we" was like the English "royal we," which does not include the common people.⁶³

The statist "we" usually exists in opposition to a "they," and Truman's statement identified both the Japanese who "began the war from the air at Pearl Harbor," and the Germans, who "were working feverishly to find a way to add atomic energy to the other engines of war with which they hoped to enslave the world." In a strange way, the fundamental evil of the "others" certified the virtue of "us" and our invention of "the greatest destructive force in history."⁶⁴

As Truman unveiled the atomic bomb to the world, he used both the conventional language of war and a conventional strategy of consumptionism. Following a strategy well known in American commercial culture, William Laurence had structured Truman's announcement as a form of "technological display," in which companies unveil a new product line to the American public. "Unveiling" is the revelation of progress packaged in a particular product. "Like nothing before it," recounts historian Michael Smith, "the bomb exemplified the pattern of concealed development and dramatic unveiling that the advertising industry had perfected." Although he was announcing a new and improved Bomb, Truman could depend on this tried-and-true commercial and cultural formula to carry his message.⁶⁵

Technological displays are advertisements for particular products, but also for the "commodity scientism" that promises progress as its most important product. Consumers of commodity scientism like R.M. Langer often mistake technology for science, and the production of technology for scientific method. Technological displays are ritual reinforcements of Americans' superstitious belief in the power of science and technology, and they involve the interplay of technological and cultural claims. Technological displays require a description of the specifications of the new product, but they also usually involve cultural claims that transcend the technology itself.⁶⁶

Truman's announcement of the atomic bomb, for example, allowed him to describe the power of the new weapon, but also to make claims about the power of American culture. Michael Smith calls this the technique of "transitivity," whereby advertisers (and governments) can "recontextualize technology" by assigning its products "social attributes that are largely independent of the products' technical design or function." Truman, for example, recontextualized the explosion of the Hiroshima bomb by emphasizing not its slaughter, but its

social and political causes and effects. And his announcement started a Cold War competition in which the superpowers linked “each new weapons breakthrough to functionally unrelated display attributes: the intelligence of its scientists, the wisdom of its leaders, the superiority of its political system.”⁶⁷

While technological displays sell products by confusing technological and cultural benefits, they also reinforce ideas about power and control. The ability of the product to control certain functions is expanded to suggest the ability of the producers to control the world. When advertisers and government propagandists convey this illusion of autonomy and control, they also mutually legitimate masculinity and technology.

Truman’s technological display, for example, suggested that American mastery of nature through the technology of the atom bomb would give the nation independence, power, and control over the postwar world. The mastery of nature was a familiar convention that placed the development of the atomic bomb firmly in the American tradition of domination and control. In the nineteenth century, for example, Americans had celebrated the development of hydroelectric power at Niagara Falls in the same voice of the technological sublime. According to H. V. Nelles, “Publicists and newspaper reporters drew upon familiar agricultural images, such as ‘tamed’ and ‘harnessed’ and freely mixed the military metaphors of ‘conquest’ and ‘triumph.’ . . . The reputation of this Wonder of the World, the frightening rush of its dark waters and the fearsome roar of its cascade, were known to every citizen. . . . On the one hand the engineer was locked in combat **against** the forces of nature, yet at the same time he consciously strove to be in harmony **with** nature’s mysteries.” This ambivalent approach to nature also characterized the Atomic Age. “In this arrangement,” says Vincent Leo, “the nuclear reaction—the physical event—became the mysterious center of power; as if America were able to command the wind and the rain.”⁶⁸

Truman’s statement also resonated with popular appreciation of technological gadgets and inventions, and the techniques of mass production. When Allan Nevins explained “How We Thought and Behaved” during World War II, he noted that Americans took great “pride in the careful planning, the systematic production of overwhelming armaments, and the skillful massing of strength which made large operations so swiftly successful. . . . The modern American genius, the genius of the country of Whitney, Morse, and Edison, precisely fitted such a war,” and Americans found “a growing exhilaration . . . in the vast productive feats of America’s rapidly mobilized war industries.” When the atomic bomb was added to “the arsenal of democracy,” then, it resonated with previous pride in the efficient, automated, and remote prosecution of the war.⁶⁹

American attitudes toward bombing had already changed in the course of the war. Before Pearl Harbor, the United States had resolutely opposed the slaughter of civilian populations by airborne bombs. When Nazi troops invaded Poland on September 1, 1939, and invited declarations of war from England and France, President Franklin Roosevelt issued an “urgent appeal to every government which may be engaged in hostilities publicly to affirm its determination that its

armed forces shall in no event, and under no circumstances, undertake the bombardment from the air of civilian populations or of unfortified cities." Such actions, undertaken by the Italians in Ethiopia, the Germans in Spain, and the Japanese in China, were, he claimed, a "form of inhuman barbarism." Within four years, however, the thirst for revenge had made "strategic" bombing a common element of American military strategy, as American pilots and bombardiers laid waste the cities of Germany and Japan, and laid the foundation for nuclear war. The people who had been seen as civilians were now seen as agents of the state, and consequently as justifiable targets. Incendiary bombs created fierce firestorms in Hamburg in July 1943, in Dresden in February 1945, and in Tokyo in May 1945, slaughtering hundreds of thousands in a raid. By summer 1945, American bombers could deliver kilotons of conventional bombs in a day; it was just more "efficient" and convenient to deliver those kilotons of firepower in a single bomb bay.⁷⁰

The process of technological display allowed Truman to put the statist voice in a commercial format, heightening the psychological impact of the atomic bomb, and increasing its symbolic value for an audience of adversaries, allies, and Americans. The statist voice can be seen in the announcement's reliance on official sources, its focus on government and national policy, its celebration of expertise and technique, its emphasis on causes and achievements, and its essential amorality. As such, Truman's announcement marked the end of the first nuclear war, and the beginning of the second.⁷¹

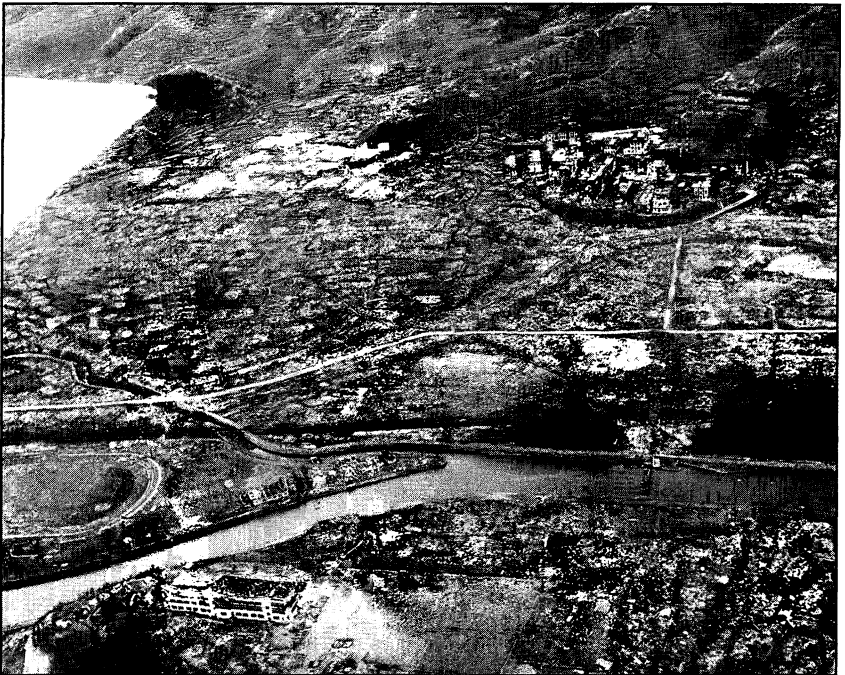
"Bureaucratic justification of enormous acts of destruction is one thing," observes historian William W. Savage, Jr., "but cultural acceptance of them is something else altogether. Since culture functions to systemize values and has an internal orientation—which is to say that American culture first serves Americans, no matter who may be affected by it, then or later—normalization of the abnormal is an inevitable consequence, whether the abnormality in question is a talking mouse, a strange visitor from another planet, or an atomic bomb. In the case of the Bomb (as it came to be known), Americans had an instant star for their various media; and early on, the process of normalization began." Truman's announcement of the annihilation of Hiroshima and Nagasaki began the process, but media voices soon complemented the President's, shaping cultural interpretations of this new force.⁷²

American journalists generally considered themselves to be a part of the "we" that President Truman represented in his statement. They identified both with the nation-state and with its representatives, who made up the "beats" that made up the daily routine of journalists. When they represented the Bomb to the American people, therefore, journalists' reports were generally uncritical: journalists also participated in the ritual and rhetoric of technological display, culling cultural meanings from the explosion of two cities.

Media coverage of the President's announcement, and of the news developments of subsequent days, established precedents for nuclear discourse which

have remained remarkably constant. The statist voice monopolized most American journalism after World War II, focusing popular attention more on the government's nuclear policy than on the country's emerging nuclear culture. "Media are another agency of the dominant ideology," says Jeff Smith. "The 'objective' mainstream press is essentially a line of access to the discourse of specialists who ordinary readers or viewers don't come into contact with on their own." Thus, the sources cited in major media in the first weeks after Hiroshima tended to be politicians, military men, government scientists, insider analysts, and a smattering of policy opponents. Such sources provided information to the press, but the information was informed by an assumption of specialist competence and a particular frame which told the audience "what to attend to, and how to attend, within the going concern of American political life."⁷³

In the days after Hiroshima, journalists generally used the frame of science journalism that had been popularized in the 1920s and 1930s. William Laurence, for example, had composed his breathless stories about the birth of the Bomb, and he fed them to a friend on the *New York Times*. But the frame of science journalism had been bent by the Bomb, because now science was in the service of the state. Journalists, therefore, began to write science journalism in the statist voice.



An aerial view of Nagasaki after the bomb. United States Army Air Force, courtesy of Harry S. Truman Library.

Because nuclear weapons came from a history of nation-states and a competition of nation-states, the sovereign state was an assumed element of this statist frame. For most journalists, the nation-state was unproblematic, not a subject for debate; therefore, American journalism concentrated mainly on how the state was managed, and how the state managed its technology, including the atomic bomb, not on how the state managed to obscure its own contingency.⁷⁴

Because of the unfamiliarity and complexity of nuclear technology and policy, journalists relied heavily on analogy and imagery to normalize the abnormal. Each metaphor was also a frame for information and communication, a strategy which affected the ways Americans perceived and thought and acted.⁷⁵ When President Truman claimed that the harnessing of nuclear weapons was an act of godlike people, he suggested that they were out of the ordinary, beyond the experience of most Americans. When Dwight Macdonald suggested that atomic bombs were as American as electric iceboxes, he located the Bomb much closer to home, and suggested the everyday complicity of American citizens.⁷⁶

The first photographs of Hiroshima and Nagasaki reinforced a triumphal interpretation of the news. Images of the mushroom cloud and aerial views of the destruction of Hiroshima dominated pictures in the papers and newsmagazines. These images were made by American air crews, both to record the historical events and to offer an interpretation of them. Although they were photographs, they presented a selective view of the events. They excluded, for example, any reference to human agency; taken from the air, they also excluded any reference to human consequences.

The officially approved aerial photographs of Hiroshima, released on August 9, followed the rule that “in wartime imagery the United States destroyed only bad things.” By 1945, such aerial pictures were familiar images in the American press. Early in the war, photographs of bombing raids had reinforced the claims of precision bombing. By 1945, aerial photographs of cities razed by incendiary bombs appeared, but they were labeled “urban industrial areas” to maximize the suggestion of military manufacturing, and to minimize the sense that innocent civilians had been slain. The Hiroshima and Nagasaki photographs were chosen and framed to reinforce Harry Truman’s claim that the city was a “military base” obliterated by the Bomb.⁷⁷

Released on August 11, the same day as the announcement of the Japanese surrender, the first images of the “mushroom cloud” reinforced American nuclear triumphalism. The photographs themselves did not provide much information, because they forced the audience to attend to the explosion more than to the bombing. But they were contextualized to provide more meaning. Overlaid with “militaristic captions” like the Associated Press’s “Smoke and fire reach toward the sky as atomic bombs are dropped on Japanese cities,” they served as “witness to the primacy of American military power, something desirable to Americans in 1945.” But as Peggy Rosenthal shows in “The Nuclear Mushroom Cloud as Cultural Image,” these photos also came to signify, not just the Bomb and its blast, but—in the pattern of transitivity—a variety of mainstream American cultural

beliefs: “confidence in creating new worlds,” “the energetic go-it-aloneness and sense of unlimited expansiveness of the mythic Wild West,” “the American capitalist spirit” and “competitiveness,” “military-technological superiority,” and “a sense of innocence.”⁷⁸

As in the case of the Manhattan Project, what was left unsaid said a great deal. Press coverage of the human destruction and irradiation was censored. As Joyce Nelson suggests, “This total elimination of the bombings’ effect on human beings—a complete exclusion of the vulnerable irradiated body from public view—shifted North American attention away from the lasting corporeal destruction to what Truman, in his press statement of August 7, 1945 [sic] called ‘the greatest achievement of organized science in history.’” As *Life* said in its August 20 editorial, “Prometheus is still an American citizen.”⁷⁹

World War II was a popular war for Americans; the end of the war was even more popular. Because the atomic bombs appeared at the end of the war, Americans associated them with the excitement and celebrations of victory. The “good war” brought forth—at least for a time—the “good” bomb. Because the Bomb coincided with the end of World War II, which left Europe and Japan in ruins but the United States physically unscathed, Americans remembered both the Bomb and the war differently than other peoples. “For millions of Americans,” notes Richard Pells, “the war brought not terror and suffering, but renewed prosperity and a better way of life after ten years of staggering economic depression. . . . It is understandable, therefore, that Americans should remember themselves not as victims of the war, but as beneficiaries of the war machine.”⁸⁰

The American people, therefore, greeted Harry Truman’s announcement of the atomic bomb with enthusiasm, granting—after the fact—the consent of the governed to decisions which the government had concealed from them. After Hiroshima, polls showed that 85 percent of the people approved of the bombing, and 13 percent favored killing all Japanese at the end of the war.⁸¹

The obliteration of one city, and then of two, raised the possibility of the obliteration of any city, and, along with their atomic triumphalism, many Americans also greeted the Bomb with fear and foreboding. They imagined the Manhattan Project unleashed against Manhattan, and some Americans began to reconsider the ethical implications of obliteration bombing.⁸²

Only a few religious pacifists had maintained conscientious objection to the war and to the increased levels of acceptable governmental violence. The churches were, in general, complicit with the war effort. Catholic journals were the most consistent opponents of the policy of obliteration bombing, with little effect on the popular mind. But a few people interpreted Christianity to mean that wanton slaughter of civilians could not be justified. And they spoke their truth to the power of the state using the civil voice of discourse. From the inside, the decision to drop the bombs made perfect sense. But to some outsiders, unschooled in the statist voice of the policymakers, the sense seemed all madness.⁸³

For a few people, the Bomb and its images connoted not progress or innocence, but “something radically unfamiliar in the American cultural experience: a sense of sin.” In time, “the concentration camp and the mushroom cloud emerged as the ultimate symbols for this war: the supreme weapons with which to terrorize and annihilate defenseless people.” Yet in 1945 the words and images which might reinforce this countercultural view were few and far between in the American press. Images of burnt and irradiated corpses, of individual human suffering, for example, were invisible to American eyes.⁸⁴

For his expression of the statist voice and for his service as President at the end of the war, Truman was named *Time*'s “Man of the Year.” The magazine's cover showed the President, like Zeus, with a hand gripping a lightning bolt, and with a mushroom cloud in the background.⁸⁵ In contrast, in the September issue of the *Catholic Worker*, personalist Dorothy Day meditated on his name: “True man.” Horrible truth. “Truman is a true man of his time in that he was jubilant about destruction. He was not a son of God, brother of Christ, brother of the Japanese, jubilating as he did.” Jesus came not to destroy, she reminded readers, but to save, saying “What you did to the least person, you did to me.”⁸⁶

In his remaining years as President, Truman continued to rely on nuclear weapons. He never regretted the bombing of Hiroshima and Nagasaki. When Robert Oppenheimer told him, in the Oval Office, that some of the atomic scientists felt they had blood on their hands, Truman scornfully offered a handkerchief and asked, “Well, here, would you like to wipe off your hands?” As Oppenheimer left the room, Truman told Dean Acheson that he never wanted “to see that son of a bitch in this office ever again.” Years later, when a television producer suggested a trip to Hiroshima for a documentary on Truman, the ex-President responded, “I'll go to Japan if you want. But I won't kiss their ass.”⁸⁷

William Laurence, Truman's ghost, parlayed his privileged position into the 1946 Pulitzer Prize and a career of dramatic promotional writing for atomic energy, a career which helped shape American public opinion in the “fast new world” of national security.

Conclusion

The Second World War was the first nuclear war. But even the first nuclear war had its precedents—in cultural beliefs and behavior concerning science and technology and war. While the fighting raged on battlefields in Europe and the Pacific, a secret war also was waged between German and American scientists to develop the atomic bomb. The Americans won the war of the laboratories, and established a military-industrial-educational complex that characterized Cold War culture. The atomic bombings brought World War II to a close, but they also opened a second nuclear war with the Soviet Union. The atomic bomb, therefore,

came out of an arms race with Germany, and contributed to an arms race with the USSR.

During the first nuclear war, another war was waged between the statist and civil voices in American culture. In this war for the American imagination, the statist voice won. Combining the established American traditions of nationalism and patriotism, of science and scientism, of technology and consumptionism, the statist voice helped scientists and policymakers make sense, and common sense, of the Bomb. After the war, the repetition and reinforcements of the statist voice created a “statist ear” in American culture whereby people were conditioned to consider credible only statements that sounded like statist common sense. During the first nuclear war, policymakers, scientists, and journalists had—in following standard operating procedures, in following the patterns of their public professions, in fulfilling established American cultural patterns—made common sense of the Bomb that fell on America in August 1945.

Notes

1. Many thanks to Sara Pust, Dan Zins, Ed Farrell, Jean Schwind, and Chris Grasso for critical readings of earlier drafts of this essay. They are among the community of scholars who expose the fiction of single authorship.

2. As chairman of the Committee to Investigate the National Defense Program, Truman had tried to discover the purpose of the secret Manhattan Project. But, at Secretary of War Stimson’s suggestion, he did not pursue the investigation. For an account of Truman’s education about the Bomb, see Richard Rhodes, *The Making of the Atomic Bomb* (New York, 1986), 617-26.

3. Jeff Smith contends that machines like nuclear weapons are “ultimately ideas,” or “precipitates of discourse, physical embodiments of a culture’s attempts to deal with certain questions.” Nuclear weapons were an answer to a variety of questions: what are the properties of heavy elements? is it possible to kill people more efficiently and dramatically? is it possible to end this war so that Americans cease to die? is it possible to create a weapon so terrible that it brings an end to all war? In this sense, the words create worlds—intellectual, ideological, material, emotional—and World Wars are also Word Wars. Jeff Smith, *Unthinking the Unthinkable: Nuclear Weapons and Western Culture* (Bloomington, 1989), 17.

4. James M. Skelly, “Power/Knowledge: The Problems of Peace Research and the Peace Movement,” (Unpublished ms., 1986), pp. 6-9; Smith, *Unthinking the Unthinkable*, 17. Smith also notes that this process is ideological, and claims that “ideology in the deepest sense is the mistaking of history and politics for metaphysics,” assuming that one way of seeing is the way things are. Smith, *Unthinking*, p. 135. On the cultural production of common sense after the first nuclear war, see Elizabeth Walker Mechling and Jay Mechling, “The Campaign for Civil Defense and the Struggle to Naturalize the Bomb,” *Western Journal of Speech Communication* 55 (Spring 1991), 105-33.

5. Skelly, “Power/Knowledge,” 6-9.

6. Robert Karl Manoff, “Covering the Bomb: The Nuclear Story and the News,” *Working Papers for a New Society* 10 (Summer 1983), 20-21.

7. James V. Wertsch, “Modes of Discourse in the Nuclear Arms Debate,” 102-112.

8. Statist hegemony of nuclear discourse has meant that these and other voices have been covered up in the history of the last fifty years; the task for historians now is to “uncover” or “discover” these traditions, so that we can see what the options really were as we opted for an institutionalized nuclear culture. Fernand Braudel notes that “victorious events come about as the result of many possibilities,” and that “for one possibility which actually is realized, innumerable others have drowned.” According to Braudel, historians need to study not just the victors but the victims of historical realization, “because the losing movements are forces which have at every moment affected the final outcome.” Braudel, quoted in Herbert Gutman, “Work, Culture and Society in Industrializing America,” in *Work, Culture and Society in Industrializing America* (New York, 1976), 67.

9. Helen Eager Davis, “What the Bomb Really Blew Up,” *Independent Woman* 25 (February, 1946), 34-35.

10. R.M. Langer, "Fast New World," *Collier's* 106 (July 6, 1940), 18-19, 54-55. For additional pre-war enthusiasm, see John J. O'Neill, "Enter Atomic Power," *Harper's* 181 (June, 1940), 1-10; William L. Laurence, "The Atom Gives Up," *Saturday Evening Post* 213 (September 7, 1940), 12-13; and Langer's "The Miracle of U-235," *Popular Mechanics* 75 (January, 1941), 1-5, 149A-150A.

Langer's uncritical echo of Aldous Huxley's *Brave New World* is ironic in retrospect, but his transmutation of the "brave" new world into a "fast" new world suggests the role that speed and the illusion of speed played in "the streamlined decade" of the Thirties. The idea of movement has always been a part of the American mind, but in the Depression Decade, with the country mired in economic stagnation, industrial designers like Raymond Loewy and Walter Dorwin Teague made futuristic streamlined shapes a motif for modern America. For Langer and many other Americans, the word speed "had become a synonym for progress: some would even regard it as defining that ambiguous concept." The two dominant shapes in design were the phallus (as in Henry Dreyfuss's *Twentieth Century Limited* locomotive and the Trylon of the New York World's Fair) and the egg (as in Buckminster Fuller's *Dymaxion* car and the Fair's Perisphere); together, they suggested a thrust into a future utopia of stasis. "The future ideal society would have machines undreamed of," says historian Jeffrey Meikle, "but there would be no place for technological acceleration with its potential for chaos." Meikle, *Twentieth Century Limited: Industrial Design in America, 1925-1939* (Philadelphia, 1979), 185.

Langer's utopian vision depended on the discoveries of the 1930s, but it also derived from a long line of literature predicting the awesome and awful wonders of the atom. Langer's essay—and others like it—showed that the Atomic Age opened as an act of the imagination long before the advent of the atomic bomb. Throughout the 20th century, imaginative literature fused fact and fiction to picture new worlds with atomic energy. Many writers, like H.G. Wells in *The World Set Free* (1914) imagined both unparalleled abundance and unprecedented destruction from this source of energy. See H. Bruce Franklin, *War Stars: The Superweapon and the American Imagination* (New York, 1988) for an excellent discussion of this literature.

11. Joseph P. Cusker, "The World of Tomorrow: Science, Culture, and Community at the New York World's Fair," in *Dawn of a New Day: The New York World's Fair, 1939/40*, ed. Helen A. Harrison (New York, 1980), 3-15. For more on nuclear utopianism, see Stephen L. Del Sesto, "Wasn't the Future of Nuclear Energy Wonderful?" in *Imagining Tomorrow: History, Technology, and the American Future*, ed. Joseph J. Corn (Cambridge, 1986), 58-76.

12. Paul A. Carter, *Another Part of the Twenties* (New York, 1977), 73-75. Carter's chapter on "Science and Democracy" is an excellent treatment of the evolving relationship between scientists and the public.

13. Del Sesto, "Wasn't the Future of Nuclear Energy Wonderful?" 59.

14. Dorothy Nelkin, *Selling Science: How the Press Covers Science and Technology* (New York, 1987), 2.

15. "Science Says," *The Nation* 127 (October 17, 1928), quoted in Carter, *Another Part of the Twenties*, 71.

16. Langdon Winner, *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (Chicago, 1986), 44-45.

17. Wendell Berry describes this sense of futuristic inevitability as "the colonization of the future." Berry, *The Unsettling of America* (San Francisco, 1977), 56. On August 12, 1945—just six days after Hiroshima—Ogburn appeared on NBC Radio as part of the University of Chicago Roundtable discussion of "Atomic Force—Its Meaning for Mankind," and defined the Bomb in terms of culture lag: "What the natural scientists do, you know, is to unleash these inventions which cause a reorganization of society, a reorganization of our political and our economic institutions and our social institutions—and always, of course (and this should not be forgotten), a re-evaluation of our ideologies." He proposed that the social sciences be given two billion dollars and three years so that they "can tell us what to do about it and can catch up." *The Atomic Age Opens* (New York, 1945), 215.

18. World War I, once called the Great War, had traumatized a generation of Western intellectuals, who considered the slaughter—8 million soldiers on the Western front alone—senseless. Soldiers had been killed haphazardly in the trenches, which symbolized this modern war without identifiable territorial objectives. "This loss of individual control, the irrelevance of rational interpretation, the failure of political or religious or philosophical language to make personal catastrophe intelligible became the primal experience of modern warfare—just as the war itself became the perfect metaphor in postwar literature for life in the twentieth century." Richard Pells, *The Liberal Mind in a Conservative Age: American Intellectuals in the 1940s & 1950s* (New York, 1985), 2.

19. Jean Bethke Elshtain, *Women and War* (New York, 1987), 48.

20. Spencer R. Weart, *Nuclear Fear: A History of Images* (Cambridge, 1988), 3-74. In novels like H.G. Wells's *The World Set Free*, the atomic bombs were dropped from airplanes. During the 1920s and 1930s, airmen like Billy Mitchell had promoted the strategic bomber as the superweapon of a decisive war. In 1932, in the wake of Japanese conquests on the Asian mainland, Mitchell noted that "Japan offers an ideal target for air operations. . . . These towns, built largely of wood and paper, form the greatest aerial targets the world has ever seen. . . . Incendiary projectiles would burn cities to the

ground in short order." When fantasies of atomic weapons joined with such projections of strategic bombing, the military images of nuclear power would come true. Franklin, *War Stars*, 91-111.

21. For a full account of these dreams, see Franklin, *War Stars*, 131-54.

22. William L. Laurence, *Dawn Over Zero: The Story of the Atomic Bomb* (New York, 1946), 90; Rhodes, *Making of the Atomic Bomb*, 386-89, 401. Also on December 6, Soviet forces launched an attack on the German Army, forcing the slow retreat that would end the European war. The attack also increased the pressure on the German economy, and effectively ended the German bomb program. But the Americans would not know this until 1944.

23. After the test, Arthur Compton of the University of Chicago called James Conant at Harvard to announce, "Jim, you'll be interested to know that the Italian navigator [Fermi] has just landed safely in the New World. He arrived sooner than expected." In the same Columbian code, which reflected both the play on 1492/1942 and their epochal interpretation of the event, Conant replied, "Were the natives friendly?" And Compton assured him, "Everyone landed safe and happy." The code also encapsulated cultural assumptions and historical ironies that Conant and Bush were not, in 1942, in a position to see. The connection of Columbus with the scientists and the natives with the natural properties of uranium reflected Western attitudes toward the control of nature; it would be interesting to imagine what metaphor Native Americans might use to describe the first nuclear chain reaction, if indeed they would even choose to split atoms. In addition, in the postwar years, many of America's uranium miners were Native Americans, who were infected by radiation poisoning in much the same way that the original natives were infected by smallpox.

24. In addition to the Manhattan Project, Groves also instituted the Murray Hill Area project to corner the world market of fissionable materials to preserve an American monopoly. Groves directed the Project and its discourse, and he also directed discourse on nuclear issues for several years after the war. Barton J. Bernstein, "Nuclear Deception: The U.S. Record," *Bulletin of the Atomic Scientists* 42 (August/September 1986), 40.

25. Rhodes, *Making of the Atomic Bomb*, 452.

26. Pells, *Liberal Mind in a Conservative Age*, 9; Joseph O. Hirschfelder, "The Scientific and Technological Miracle at Los Alamos," in *Reminiscences*, 68. After the war, Edward Teller elegantly abstracted this motivation: "If the scientists in the free countries will not make weapons to defend the freedom of their countries, then freedom will be lost." Rhodes, *Making of the Atomic Bomb*, 336. Among the pacifists, or those with pacifist leanings, were Albert Einstein, Robert Oppenheimer, Arthur Compton, and Robert Wilson. Rhodes, *Making of the Atomic Bomb*, 364; and R.W. Reid, *Tongues of Conscience: War and the Scientists' Dilemma* (London, 1969), 61, 165.

27. Arnold Pacey, *The Culture of Technology* (Cambridge, 1986), 87-90. Pacey contends that scientists work, not just instrumentally for the purpose of producing a particular product, but existentially for "virtuosity values"—the joy of discovery, the pleasure of artistic creativity, and the "technological exuberance" of mastering an elemental force. The culture of technology, Pacey claims, "comprehends at least two overlapping sets of values, the one based on rational, materialistic and economic goals, and the other concerned with the adventure of exploiting the frontiers of capability and pursuing virtuosity for its own sake."

28. Weart, *Nuclear Fear*, 95.

29. Rhodes, *Making of the Atomic Bomb*, 243.

30. R.R. Wilson, "A Recruit for Los Alamos," in *All in Our Time*, ed. Jane Wilson (Chicago, 1975), 154; Lawrence Badash, Joseph O. Hirschfelder, Herbert P. Broida, eds., "Introduction," *Reminiscences of Los Alamos, 1943-1945* (Dordrecht, Holland: D. Reidel, 1980), xx. The scientific community of Los Alamos was largely a community of men. In the social construction of culture in America, science came to be associated with masculinity, and with masculine traits of exploration, discovery, and—sadly—destruction. Many of the wives of the Los Alamos scientists lived with their husbands on the premises, but the men were forbidden to share secrets with their spouses. Only Arthur Compton's wife Betty was cleared for conversations with her husband. For critiques of the masculinity of American nuclear weapons work, see Carol Cohn, "Sex and Death in the Rational World of Defense Intellectuals," *Signs* 12 (Summer 1987): 692-99. See also Adrienne Harris and Ynestra King, eds., *Rocking the Ship of State: Toward a Feminist Peace Politics* (Boulder, 1989) and Diana E.H. Russell, ed., *Exposing Nuclear Phallacies* (New York, 1989).

31. "Dawn," *War and Peace in the Nuclear Age* (Public Broadcasting System, 1988). Phillip Morrison's "feeling" of the bomb reminds us that "kinesthetic knowing" is among many "ways of knowing" in the culture. But abstract knowing would prevail in nuclear discourse. Five days after Trinity, Morrison recalled, British physicist William Penney projected the blast effects of the Bomb on a city. "He applied his calculations. He predicted that this [weapon] would reduce a city of three or four hundred thousand people to nothing but a sink for disaster relief, bandages, and hospitals. He made it absolutely clear in numbers. It was reality." Rhodes, *Making of the Atomic Bomb*, 678.

32. Rhodes, *Making of the Atomic Bomb*, 377-79. According to Herbert S. Marks, "The Manhattan District bore no relation to the industrial or social life of our country; it was a separate state, with its own airplanes and its own factories and its thousands of secrets. It had a peculiar sovereignty, one that could bring about the end, peacefully or violently, of all other sovereignties." Rhodes, 277.

33. Rhodes, *Making of the Atomic Bomb*, 423-24. Szilard continued his opposition to compartmentalization; General Groves ordered surveillance and drafted a letter—never delivered—to the Attorney General calling Szilard an “enemy alien” and asked that he “be interned for the duration of the war.” See Rhodes, 502-510.

34. Rhodes, *Making of the Atomic Bomb*, 525-38.

35. The secrecy and security provisions of each side in the war necessitated the spies on the other side. But the spy issue did not become prominent until the second nuclear war.

36. One of the security officers expressed his opinion about the relationship between the Army and the scientists in a memo noting that “Oppenheimer is deeply concerned with gaining a worldwide reputation as a scientist, and a place in history, as a result of the D.S.M. [Manhattan] project. It is also believed that the Army is in the position of being able to do so or to destroy his name, reputation, and career, if it should choose to do so. Such a possibility, if strongly presented to him, would possibly give him a different view of his position with respect to the Army, which has been, heretofore, one in which he is dominant because of his supposed essentiality. If his attitude should be changed by such an action, a more wholesome and loyal attitude might, in turn, be injected into the lower echelon of employees.” Reid, *Tongues of Conscience*, 267-68. Edward Condon found the security so oppressive that he returned to his position at Westinghouse. Rhodes, *Making of the Atomic Bomb*, 464.

37. Robert Karl Manoff, “The Media: Nuclear Secrecy vs. Democracy,” *Bulletin of the Atomic Scientists* 40 (January, 1984), 28.

38. H. Bruce Franklin, “Nuclear War and Science Fiction,” in *Countdown to Midnight* (New York, 1984), 15-16. Ironically, “secrecy itself gave the secret away,” because it was the omission of articles on nuclear physics from American science journals that first alerted Soviet scientists to the American bomb project. Rhodes, *Making of the Atomic Bomb*, 327, 501.

39. Feynmann, “Los Alamos from Below,” in *Reminiscences*, 129; Fermi, “The Fermis’ Path to Los Alamos,” in *Reminiscences*, 98.

40. Lansing Lamont, *Day of Trinity* (New York, 1965), 180, 86. The process by which a group of men become “sons-of-bitches” by exploding a bomb is a curious cultural process. The mothers of these men, it seems, become bitches only by virtue of the post-natal actions of their sons.

41. Stephane Groueff, *Manhattan Project: The Untold Story of the Making of the Atomic Bomb* (New York, 1967), 407; Lamont, *Day of Trinity*, 187.

42. Feynmann, “Los Alamos from Below,” in *Reminiscences*, 132.

43. Reid, *Tongues of Conscience*, 181, 186; Joseph Rotblat, “Leaving the Bomb Project,” *Bulletin of the Atomic Scientists* 41 (August, 1985), 16-19.

44. Rhodes, *Making of the Atomic Bomb*, 308, 312. Reid, *Tongues of Conscience*, 194-95.

45. Truman himself was not present for these discussions, but his later response to Robert Oppenheimer suggests his possible position. See below.

46. Rhodes, *Making of the Atomic Bomb*, 749.

47. Bernstein, “Nuclear Deception: The U.S. Record,” 40.

48. Reid, *Tongues of Conscience*, 179, 206, 208. By privileging “special competence” over full human understanding, the scientists (and others) guaranteed that general policy would be constructed out of partial knowledges. The situation was similar in Germany: Carl-Friedrich von Weizsacker recalled that “whereas in the 1940’s his conscience was attuned to the probable results of his scientific work he, along with his colleagues, was not exercising his conscience as a citizen; scientists conformed as a class, as did others living under Nazi rule, and chose not to ask what was happening to the Jews.” Reid, 120.

49. Fermi, “The Fermis’ Path to Los Alamos,” in *Reminiscences*, 99-100.

50. Lawrence L. Langer, *The Age of Atrocity: Death in Modern Literature* (Boston, 1978), 61.

51. Thomas P. Hughes, *American Genesis: A Century of Invention and Technological Enthusiasm 1870-1970* (New York, 1989), 383; Robert Gilpin, *American Scientists and Nuclear Weapons Policy* (Princeton, 1962), 10. “Twentieth-century warfare finally established state-sponsored R & D as a public duty and necessity,” says Walter McDougall in *The Heavens and the Earth: A Political History of the Space Age* (New York, 1985), 5.

52. Writing in 1988, Pam Solo notes that “over 25 percent of American scientists are said to be working directly or indirectly on the development of weapons of mass destruction. In the United States, over 70 percent of all research and development funds in the federal budget are spent on military R & D. Pam Solo, *From Protest to Policy: Beyond the Freeze to Common Security* (Cambridge, 1988), 9.

53. The Manhattan Project also inaugurated the information age, according to David K. Allison, curator of a Smithsonian Institution exhibition on that topic. “Computers and the atomic bomb grew up together,” he recalls. “Most of the early development of computers came out of the nuclear weapons program. . . . Other aspects of computer technology, such as transistors, came out of the defense program generally. But what happened over time. . . is that information technology based on computers became more important than atomic technology. Instead of living in the atomic age, we ended up living in the information age.” Ken Ringle, “The Blurred Path from Data to Knowledge to Wisdom,” *Washington Post Weekly* (June 4-10), 34. For connections between the atomic age and

the age of television, see Joyce Nelson, *The Perfect Machine: Television and the Bomb* (Philadelphia, 1992).

54. Spencer R. Weart, "The Heyday of Myth and Cliche," in *Assessing the Nuclear Age*, ed. Len Ackland and Steven McGuire (Chicago, 1986), 81-82. The Interim Committee reviewed the draft on May 18.

55. Spencer R. Weart, *Nuclear Fear: A History of Images* (Cambridge, 1988), 99-100. Laurence used Promethean and Christian images throughout his writing. "True descendants of Prometheus," he wrote, "the science writers take the fire from the scientific Olympus, the laboratories and universities, and bring it down to the people." Or again, shortly after joining the Manhattan Project, he wrote to his editor that he was working on "a sort of Second Coming of Christ yarn."

56. William L. Laurence, "The Atom Gives Up," *Saturday Evening Post* 213 (September 7, 1940), 12, 60.

57. White House Press Release on Hiroshima, August 6, 1945 in *The American Atom: A Documentary History of Nuclear Policies from the Discovery of Fission to the Present*, ed. Robert C. Williams and Philip L. Cantelon (Philadelphia, 1984), 68-70.

58. *Ibid.*

59. On the justification of the expense of the Manhattan Project, see Rhodes, *Making of the Atomic Bomb*, 638, 697. The same rationale would justify the B-29 aircraft used on the Hiroshima and Nagasaki bombings: "The B-29 had to be . . . successfully used, or men who had staked their careers and their convictions would be shamed, resources squandered that might have aided elsewhere in the war, lives lost futilely and millions of dollars wasted." Rhodes, *Making of the Atomic Bomb*, 587.

60. Weart, *Nuclear Fear*, 103. Since 1945, strategists have distinguished between conventional and nuclear war, but this distinction was not yet operative in August 1945.

61. Smith, *Unthinking the Unthinkable*, 142. For more on what Smith calls "the 'we' problem," see Peter Moss, "Rhetoric of Defence in the United States: Language, Myth and Ideology," in *Language and the Nuclear Arms Debate: Nukespeak Today*, ed. Paul Chilton (London, 1985), 46-51.

62. Edmund Wilson, *The Cold War and the Income Tax: A Protest* (New York, 1963), 26-27. After the war, instead of cutting taxes, the Federal government extended services and its definition of national security to fit the monies available.

63. In a paradoxical fashion, the income tax in America distances the tax-paying "we" of the citizenry from the tax-collecting "they" of the state. The state is generally seen, not as the collective will of its people, but as an autonomous entity that compels the payment of taxes for whatever purposes the government decides. Because the Internal Revenue Service collects taxes for all of the government's purposes, most people do not understand the payment of taxes as an active choice. In a strange way, citizens act without, in fact, acting at all. Only the logic of structural violence—*anathema* to American individualism—suggests that inaction can be the core of complicity.

64. "Hatred of the enemy was not needed to harden the determination of the country," wrote Allan Nevins shortly after the war, "but more than in the first World War hatred existed. Probably in all our history no foe has been so detested as were the Japanese. . . . the German system was detested as Americans had seldom detested anything. That satanic cancer they were determined to excise from the world at any cost." Allan Nevins, "How We Felt About the War," in Jack Goodman, ed., *While You Were Gone: A Report on Wartime Life in the United States* (New York, 1946), 13-14. The evil of our enemies even justified the cost of atomic obliteration; no thought was given, after the war, to trying American leaders for war crimes. On the ironies of the war crimes trials, see Dower, *War Without Mercy*, 37-38.

65. Michael L. Smith, "Selling the Moon: The U.S. Manned Space Program and the Triumph of Commodity Scientism," in *The Culture of Consumption: Critical Essays in American History 1880-1980*, ed. Richard Wightman and T.J. Jackson Lears (New York, 1983), 188.

66. Smith, "Selling the Moon, 179-91.

67. *Ibid.*

68. H.V. Nelles, *The Politics of Development* (Toronto, 1975), 218-19; Vincent Leo, "The Mushroom Cloud Photographs: From Fact to Symbol," *AfterImage* 13 (Summer 1985), 7-8.

69. Nevins, "How We Thought and Behaved," 21-23.

70. Franklin, *War Stars*, 101-105. See also Rhodes, *Making of the Atomic Bomb*, 468-76, 595-600. Each escalation of slaughter justified the next. Physicist Ernest Lawrence, for example, pointed out, in a 1945 meeting of the Interim Committee, that the "number of people that would be killed by the bomb would not be greater in general magnitude than the number already killed in fire raids." Rhodes, *Making of the Atomic bomb*, 648. To some extent, too, the war itself had made life cheap. Thirty-nine million people had perished in the European war; in that context, what were a few hundred thousand additional casualties?

City-busting strategic bombing changed the gender politics of war. Until World War II, there had been clear boundaries between the military front and the home front, between the male warrior and the female noncombatant, between the nation-state and the family, between state targets and civilians. Strategic bombing breached these boundaries and guaranteed that women and children

would be victims in the first man-made nuclear war. Rosemary Foot, "Where Are the Women? The Gender Dimension of the Study of International Relations," *Diplomatic History* 14 (Fall 1990), 616-17. See also Miriam Coke and Angela Woollacott, eds., *Gendering War Talk* (Princeton, 1993).

71. "The postwar arms race thus became a succession of symbolic deployments," says Michael Smith, "not unlike the annual announcement of new car models. As each new weapon or detection system rendered its still unpaid-for, equally oversophisticated predecessor obsolete, the pressure to develop a replacement redoubled. Generals and contractors clamored for the greater 'push-button control' of an increasingly uncontrollable defense environment—all in an effort to recapture the brief, euphoric moment when America alone possessed the bomb." Smith, "Selling the Moon," 190-191.

72. William W. Savage, Jr., *Comic Books and America, 1945-1954* (Norman, 1990), 15.

73. Smith, *Unthinking the Unthinkable*, 137. In her book on *Selling Science*, for example, Dorothy Nelkin examines the assumptions of science journalism. She suggests that, "to the extent that [science writers] share common assumptions about science and technology, their writing on scientific issues takes place within what Todd Gitlin calls a frame; that is, 'a persistent pattern of cognition, interpretation and presentation, of selection, emphasis, and exclusion.' This frame organizes the world for journalists, helping them to process large amounts of information, to select what is news, and to present it in an efficient form. Their metaphors, descriptive devices, and catch phrases are expressions of this frame." The frame determines, to a great extent, what news is fit to print, how it will be headlined, where it will be placed in the newspaper, and how it will be presented to the public. Nelkin, *Selling Science*, 9.

74. Smith, *Unthinking the Unthinkable*, 125.

75. Nelkin, *Selling Science*, 11.

76. Dwight Macdonald, "The Bomb: The Decline into Barbarism," *Politics* (August 1945), 225; *Politics* (September 1945), 258-60.

77. George H. Roeder, Jr., *The Censored War: American Visual Experience During World War II* (New Haven, 1993), 84-85.

78. Leo, "Mushroom Cloud Photographs," 6-12; Joyce Nelson, *The Perfect Machine*, 31-32; Peggy Rosenthal, "The Nuclear Mushroom Cloud as Cultural Image," *American Literary History* 3 (Spring 1991), 82-83. Eventually the clouds would be seen more as a force of nature and of science than as an act of war. After the Bikini tests of 1946, these large puffs of a peculiar shape were called "mushroom clouds," linking the events more to nature than to culture, and "naturalizing" the explosions. They would also be the main catalyst of the "atomic sublime." See also Peter B. Hales, "The Atomic Sublime," *American Studies* 32 (Spring 1991), 5-31.

79. Nelson, *The Perfect Machine*, 31. Army cameramen shot 85,000 feet of 16mm film of the tragedy, and Japanese moviemaker Akira Iwasaki shot 45,000, which was confiscated and classified "top secret." None of it was seen by the public until 1980. The absence of images of blasted bodies had its effect: one American recalled after the war that he "had never thought of people in bombed cities as individuals" until he read John Hersey's *Hiroshima* in 1946. Roeder, *Censored War*, 86.

80. Richard Pells, *The Liberal Mind in a Conservative Age: American Intellectuals in the 1940s & 1950s* (New York, 1985), 6. That the United States was "physically unscathed" by the war is debatable; except for Pearl Harbor, the country was not bombed or invaded, but war still leaves its scars on the landscape, as the country consumes resources to fuel the war machine.

81. Lawrence Wittner, *Rebels Against War: The American Peace Movement, 1933-1983* (Philadelphia, 1984), 128-29. See also Boyer, *By the Bomb's Early Light*, 22-24.

82. For some of the immediate fears, see Boyer, *By the Bomb's Early Light*, 5.

83. For a critique of the self-righteousness sometimes found in the interstices of just-war discourse, see Elshtain, *Women and War*, 157-58. For analyses of responses to obliteration bombing, see George E. Hopkins, "Bombing and the American Conscience During World War II," *The Historian* 28 (May 1966), 451-73.

84. Rosenthal, "Nuclear Mushroom Cloud," 83; Richard Pells, *The Liberal Mind in a Conservative Age*, 3. Rosenthal notes that the censorious selection continues: "I've never seen these close-ups in military museums' bomb documentaries, which follow the mushroom cloud either by V-J Day celebrations or by a quick cut of the charred Hiroshima footage. And in the military films, the Hiroshima shot stands for the bomb's finally ending World War II, a very different finality from that of the antinuclear view." Rosenthal, 73-74. For more on the censorship, see Monica Braw, *The Atomic Bomb Suppressed: American Censorship in Occupied Japan* (Armonk, N.Y., 1991).

85. *Time* (December 21, 1945), cover.

86. Jim Forest, *Love Is the Measure: A Biography of Dorothy Day* (New York, 1986), 117-18.

87. Paul Boyer, *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* (New York, 1985), 193. For a poignant meditation on Truman's atomic bomb decision, on the occasion of his funeral, see Jean Bethke Elshtain, *Women and War* (New York, 1987), 38-39.