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THE ETHICAL RESPONSIBILITIES OF THE SCIENTIST: THE CASE OF J. ROBERT OPPENHEIMER

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In the spring of 1946, J. Robert Oppenheimer delivered a series of six lectures on atomic energy at Cornell University. He was a guest of the physics department, among whose members he counted several friends, veterans of the wartime Manhattan Project he had directed. For his efforts in developing the atomic bomb, Oppenheimer had recently been awarded the United States Medal for Merit, the highest honor the government can bestow on a civilian. Within the year he would accept a prestigious position as director of the Institute for Advanced Study at Princeton. When he visited Cornell, Oppenheimer was at the very pinnacle of his career.

Despite this public esteem, Oppenheimer's whereabouts were profoundly interesting to the Federal Bureau of Investigation. So much so, in fact, that the FBI obtained a detailed report on his comings and goings during the two weeks he spent at Cornell. The FBI learned how he spent his time on campus, how much he was paid for giving the lectures, what he said in them, how large an audience he had, who he met at various social functions, where he was housed, and to whom he made long distance telephone calls. The report concluded with assurances that Oppenheimer was "not contacted by any radical individuals" or "by any faculty members who were regarded as leftists," and that, fortunately, there were no "active . . . Soviet agents in the vicinity of Ithaca."[1]

This information was provided by "Confidential Informant T-1," who was identified only "as an official of Cornell University." The informant, it turns out, was Edward K. Graham, secretary of the university, who was, sad to say,

a former graduate student in history—later described by one of his professors as "a wild sort of chap . . . not an ounce of sense in his head"—who had moved on into administration.[2] He was only one of many agents and informants who spent their time shadowing Oppenheimer. When his FBI file was released under the Freedom of Information Act, it became evident that Oppenheimer was periodically monitored from 1941 until his death in 1967. One of the last documents in the file is the obituary in the *New York Times*.

The files reveal that the FBI not only trailed Oppenheimer but also tapped his home telephone. There are transcripts of conversations with Undersecretary of State Dean G. Acheson, United States Supreme Court Justice Felix Frankfurter, Atomic Energy Commissioner David E. Lilienthal, and Wall Street financier Bernard Baruch, none of whom would seem to qualify as dedicated agents of the international communist conspiracy. Oppenheimer surely suspected that his phone was tapped. Calling his wife, Katherine, from Cornell, he heard a clicking sound and joked, "The FBI must just have hung up." Katherine, the transcript reports, merely giggled.[3]

As it turns out, the government did far more to Oppenheimer than subject him to surveillance and eavesdrop on his conversations. In December 1953 President Dwight Eisenhower erected a "blank wall" between Oppenheimer and classified information, and in June 1954 the Atomic Energy Commission stripped him of his consultant's contract on the grounds that he was a poor security risk. Many observers believed that the physicist was being punished because since 1949 he had opposed U.S. efforts to build a hydrogen bomb. He therefore came to be viewed with some reason as a tragic hero, victimized for voicing honest doubts about the escalating arms race.

Yet Oppenheimer's tale is not merely one of injustice and persecution. Rather, his career illustrates the dilemma that confronts a scientist faced with the prospect of making ever more destructive weapons available to the state, and faced with the problem, therefore, of deciding whether it is ever appropriate to refuse such cooperation and, if so, on what grounds. Oppenheimer's dilemma was especially acute because he cared so deeply about ethical issues. His role as a leader in his generation of physicists derived not only from his brilliance as a theorist of quantum mechanics, but also from his sensitivity to the ethical implications of nuclear and thermonuclear warfare, from his conviction, that is, that science and moral responsibility were somehow inseparable.

In his marvelous memoir *Disturbing the Universe,* Freeman Dyson, who was a friend of Oppenheimer's, writes: "The best way to approach the ethical problems associated with science is to study real dilemmas faced by real sci-

entists."[4] I believe Dyson is right, and so my approach in this essay will be to discuss the religious, philosophical, and political influences that shaped Oppenheimer's outlook; then to examine the divergent ways in which that outlook shaped his decisions regarding the atomic bomb and the hydrogen bomb; and finally to speculate about how certain unresolved ambiguities in that outlook may have undermined his ability to defend himself at the 1954 security-clearance hearing.

ETHICAL CULTURE: THE LEGACY OF FELIX ADLER

J. Robert Oppenheimer was born in New York City in 1904. His father, Julius, had emigrated to the United States from Germany in 1888 at the age of seventeen and in 1903 married Ella Friedman. They had two sons, Robert and Frank, who was born in 1912. (A third child died in infancy.) Julius Oppenheimer, an importer of fabrics and textiles, became quite wealthy, and so the family enjoyed comfortable surroundings: a luxurious, beautifully furnished apartment on Riverside Drive and Eighty-eighth Street: servants, including a butler, a maid, and a chauffeur; and a private art collection with works by Van Gogh, Cezanne, and Gauguin. Summers were spent at Bay Shore, Long Island, where the family had a vacation home. When Julius died in 1937 (his wife had died in 1931), he left his sons an inheritance of nearly $400,000, a considerable fortune in those days.

Although they were Jewish, the Oppenheimers were not practicing Jews. Instead they belonged to the Society for Ethical Culture, founded by Dr. Felix Adler in 1876. Julius Oppenheimer, who served for many years on the board of the society, was a friend of Adler's. Once, writing a poem in honor of his father's fiftieth birthday, Robert commented that "he swallowed Dr. Adler like morality compressed."[5] Both Oppenheimer boys attended the Ethical Culture School on Central Park West near Sixty-third Street, Robert from September 1911, when he entered the second grade, until his graduation from high school in 1921. The Ethical Culture movement, therefore, was profoundly important in the shaping of Robert Oppenheimer's moral universe.

Felix Adler had originally intended to enter the rabbinate, following in the path of his father, who presided over Temple Emanu-El, a reform synagogue in New York City. Upon graduating from Columbia College in 1870, he went to Germany to study theology and literature. During the three years he spent in Berlin and Heidelberg, however, he was exposed to the "Higher Criticism" of the Bible, a field of inquiry then flourishing under the intellectual leader-

ship of Julius Wellhausen and Adler's teacher, Abraham Geiger. Applying modern techniques of textual analysis to the Old Testament, these scholars concluded that the Torah had been composed by different individuals at different times, and therefore could not have been inspired by divine will. Their findings contradicted fundamental tenets of Judaism—that the children of Israel had a special covenant with God, for example, and that the Ten Commandments expressed eternal truths.[6]

Felix Adler had begun to experience religious doubts even before arriving in Germany; now, the Higher Criticism fatally undermined his faith in Judaism. When he returned to the United States, he recalled, he attended a Sabbath service. After the reading of the Torah, the scrolls were lifted for all to see and the congregation chanted: "And this is the Law which Moses set before the people of Israel." But Adler no longer believed in the Torah's authenticity: "Was I to repeat these words?" he asked, and answered his own question: "It was impossible. I was certain that they would stick in my throat."[7]

After briefly teaching Oriental and Hebrew literature at Cornell University, Adler returned to New York City to found the Society for Ethical Culture, to which he devoted the rest of his life. Adler maintained that men and women had the capacity and the duty to lead morally righteous lives. To behave ethically required treating other people as ends in themselves, not as a means to one's own ends. Such behavior, "first-rate conduct" Adler liked to call it, would elicit the best in others and therefore in oneself. But the duty to behave ethically did not exist because God had ordained it and would reward those who obeyed His will and punish those who did not. Rather, Adler followed Immanuel Kant in asserting that human beings had an innate moral faculty capable of distinguishing right from wrong. "The moral law lives," Adler said, "whether there is a God or not."[8]

The Ethical Culture movement neither affirmed nor denied the existence of God, but it surely denied the existence of what most people mean by the word. If there were a God, Adler explained, it was not an omniscient God who provided meaning to the universe; or a personal God to whom one should pray; or an omnipotent God, since, as Adler wrote, "one cannot love infinite power and majesty." Most important, if there were a God it was not an ineffable God whose existence required belief in anything that offended reason. Adler wanted to create a "religion for adults" that would "satisfy [the] intellect," would be consistent with observable scientific truth, and would stress the performance of good deeds not adherence to a creed.[9]

The Ethical Culture School therefore fostered a "social and ethical outlook" through "the inculcation of the democratic spirit," "the awakening of

serious intellectual interests and enthusiasms," "the awakening of the spirit of social service by enlisting the interest of the students in the work of the Settlements," and "the building up of a largely humanitarian and ideal purpose by placing at the focus of the entire educational scheme toward which all lines converge the idea of human progress." In addition to a demanding academic curriculum, students received "direct moral instruction." In the earlier grades, ethics was taught through fables and biblical tales, but by the seventh grade students were using selections from Greek history illustrating the virtues of temperance, intellectual striving and moral attainment; the readings included Plutarch's lives of Lycurgus, Pericles, Themistocles, Aristides, and Socrates. By the eighth grade students had progressed to "Biographical subjects drawn from Roman history. The conflict of Patricians and Plebeians, and the lessons to be derived from it."[10]

J. Robert Oppenheimer, then, was raised in an environment and attended a school that placed a great emphasis on ethical conduct. The necessity for such conduct, however, did not derive from a set of scriptural commandments that, in Felix Adler's view, were "unverifiable" but rather from one's own powers of logical understanding, one's own reason. Oppenheimer's memories of the Ethical Culture School, which he often shared with his brother Frank, remained with him all his life. So did the friendship he formed with one of his English teachers, Herbert Winslow Smith. In August 1945, Oppenheimer wrote to him about the role of the atomic bomb in ending the war and his own role in building the bomb. "This undertaking has not been without its misgivings; they are heavy on us today, when the future, which has so many elements of high promise, is yet only a stone's throw from despair. Thus the good which this work has perhaps contributed to make in the ending of the war looms very large to us, because it is there for sure."[11]

THE BHAGAVAD GITA: "I AM BECOME DEATH . . ."

Following his graduation from the Ethical Culture School, Oppenheimer took a summer trip to Europe. Unfortunately, he contracted a severe case of dysentery, followed by colitis. His convalescence took the better part of a year, and so he did not enter Harvard College until the fall of 1922. Making up for lost time, he completed the four-year course of study in only three by taking six courses a term; in his senior year, he enrolled in five courses and audited five more. In 1925 he went to England to continue his studies in physics but soon moved to Germany, to the University of Göttin-

gen, where he studied with Max Born and James Franck. Oppenheimer received his Ph.D. in 1927, was awarded a National Research Council fellowship, and in 1929 accepted a joint appointment in physics at the University of California, Berkeley, and the California Institute of Technology. Within a short time he established himself as a leading theorist in the emerging field of quantum mechanics.

But Oppenheimer was more than a brilliant physicist. His intellectual interests encompassed poetry, literature, philosophy, and languages. He eventually became fluent in eight languages, lecturing in Dutch, for example, after studying it for only six weeks. He once asked his Berkeley colleague Leo Nedelsky to give a lecture for him, explaining that the preparation would be easy because "it's all in a book"; when Nedelsky located the book and reported that it was written in Dutch, Oppenheimer replied, "But it's such *easy* Dutch!"[12] In 1931 Oppenheimer began the study of Sanskrit with Arthur W. Ryder of the Berkeley faculty. "I am learning sanskrit," he told his brother, "enjoying it very much, and enjoying again the sweet luxury of being taught." Soon he was reading the Bhagavad Gita with Ryder in the original. "It is very easy," he reported, "and quite marvellous."[13] It would, in fact, become a determining influence on Oppenheimer's outlook on ethics.

Written between the fifth and second centuries B.C.E., the Bhagavad Gita, an epic poem of seven hundred stanzas, is a centrally important text of Hinduism.[14] The path to salvation, it asserts, lies in holy knowledge, the intuitive knowledge of a supreme truth. The perfected self may gain this knowledge and achieve union with the One through righteousness, asceticism, devotion, and karma yoga: that is, by engaging in disciplined activity, the task for which one is suited without concern for worldly rewards. The Bhagavad Gita, or "the song of the Lord," contains many other concepts central to Hinduism, but the crucial portion involves a dialogue within a dialogue: the charioteer Sanjaya is describing a conversation between Krishna, an incarnation of the god Vishnu who has assumed human form, and his disciple, Arjuna, who is contemplating going into battle.

Although destined to be a warrior, Arjuna, seeing the opposing forces lined up, shrinks from the fight. "My mouth becomes dry" thinking of the fearful cost in lives, he says, "nor surely can good ever come from killing my kinsmen" for once having slain them, "could we be happy?" Because even victory would be hollow, "should we not know enough to turn away from this havoc?" War produces only chaos, lawlessness, and corruption, he continues: "Far better that I remain / Unresisting and unarmed / And that the armed sons of Dhirita-rashtra / Should kill me in the struggle." Seating him-

self in his chariot, Arjuna "dropped his arrows and his bow / His heart brought low in sorrow." "I see nothing to drive away Grief," he tells Krishna, "I will not fight."

To dispel these corrosive doubts, Krishna instructs Arjuna to "shake off this petty weakness." "For a warrior there is no better thing / Than to fight out of duty." To refuse to do battle, Krishna says, will lead only to shame and disgrace. Then, Krishna gives Arjuna "the eye of a god," divine vision that allows him to behold Krishna in all his mystery, in the form of a god as bright as "a thousand suns." Blinded, overawed, overwhelmed, Arjuna, trembling with fear, begs for mercy: "Your dreadful rays fill the whole universe, Vishnu, and scorch it with their brightness." "Tell me, you of awful form, who are you?" And Krishna replies: "I am time, destroyer of worlds, grown old / Setting out to gather in the worlds." Krishna then instructs Arjuna: "Strike them down. Do not falter. Fight! You will beat your rivals in battle."

Nothing more clearly illustrates the influence of the Bhagavad Gita on Oppenheimer than his references to it at Alamogordo, the site in the New Mexico desert where the first atomic bomb was detonated. On July 14, as the bomb was being readied, Oppenheimer quoted a few lines to Vannevar Bush, who headed the federal Office of Scientific Research and Development: "In battle, in the forest, at the precipice in the mountains / On the dark great sea, in the midst of javelins and arrows / In sleep, in confusion, in the depths of shame / The good deeds a man has done before defend him."[15] Oppenheimer recalled that when he actually saw the bomb explode in a brilliant burst of light and the fireball ascend to the heavens: "There floated through my mind a line from the Bhagavad-Gita in which Krishna is trying to persuade the Prince that he should do his duty: 'I am become death, the shatterer of worlds.' "[16]

Three months earlier, when Franklin D. Roosevelt died and thoughts of earthly mortality were much on Oppenheimer's mind, he had also instinctively turned to the Bhagavad Gita. Speaking to the scientists at Los Alamos in a memorial tribute, he said: "In the Hindu scripture, in the Bhagavad-Gita, it says, 'Man is a creature whose substance is faith. What his faith is, he is.' " Roosevelt's faith, Oppenheimer continued, was shared by millions of people around the world. "For this reason it is possible to maintain the hope, for this reason it is right that we should dedicate ourselves to the hope that his good works will not have ended with his death."[17]

Perhaps his most suggestive invocation of the Bhagavad Gita had occurred years before, in 1932, while Oppenheimer was studying Sanskrit with Arthur Ryder. In a letter to his brother Frank he cited the poem and other religious texts. "I believe that through discipline, though not through discipline alone,

we can achieve serenity, and a certain small but precious measure of freedom from the accidents of incarnation, and charity." Self-discipline allows us "to preserve what is essential to our happiness" and abandon what is not, he went on, so "that we come a little to see the world without the gross distortion of personal desire." He then added a sentence that, as Freeman Dyson has observed, holds a key to understanding Oppenheimer's character: "Therefore I think that all things which evoke discipline: study, and our duties to men and to the commonwealth, war, and personal hardship, and even the need for subsistence, ought to be greeted by us with profound gratitude; for only through them can we attain to the least detachment; and only so can we know peace."[18]

Placing war on a short list of things for which to be grateful certainly reflected Oppenheimer's immersion in the Bhagavad Gita, which, at some level, he may have read as a sustained argument against pacifism. The work required of a warrior, faced with the prospect of fighting a holy war, was to fight. "Do the work that is required," Krishna counsels: "It is better to act than be still." For all the profound differences between Hinduism and Ethical Culture, this admonition resembled one of Felix Adler's. "The object of life is activity, work," Adler wrote: "We are here to do a certain work, to do it as faithfully, as efficiently and in as social a spirit as we may."[19] As it developed, the particular kind of work Oppenheimer was most capable of doing was precisely the kind needed by a nation in the midst of a world war.

THE POPULAR FRONT: THE GHOST OF JOE DALLET

"Tell me," Oppenheimer asked a friend in the early 1930s, "what has politics to do with truth, goodness and beauty?"[20] The remark captured the studied lack of interest in public affairs of a man who did not own a radio or read the newspapers. He did not know that the stock market had crashed in October 1929 until months afterward. He did not even bother to vote in 1932. But in 1936 his outlook changed dramatically. He plunged headlong into politics, and left-wing politics at that. Although he never became a member of the Communist Party, Oppenheimer supported its positions, subscribed to the daily *People's World,* joined several of its "front" organizations, and contributed substantial sums to its coffers. "I liked the new sense of companionship," he later explained, "and at the time felt that I was coming to be part of the life of my time and country."[21]

Oppenheimer offered various explanations for his political awakening: he read Sidney and Beatrice Webb's *Soviet Communism: A New Civilization?*,

which led him "to make much of the economic progress and general level of welfare in Russia, and little of its political tyranny"; he felt a "continuing, smoldering fury about the treatment of Jews in Germany," where he still had relatives; he "saw what the depression was doing to my students," many of whom were unable to obtain jobs commensurate with their training. In the fall of 1936, moreover, he began courting Jean Tatlock—they twice were close enough to marriage to consider themselves engaged—who was an "on again, off again" member of the Communist Party and "a friend of many fellow travelers and Communists."[22] In 1937, Oppenheimer added, his brother Frank and his wife Jacquenette Quann both joined the Communist Party.

At the time, Oppenheimer noted, the Communist Party was supporting many "humanitarian objectives." The late 1930s was the era of the Popular Front, when communists emphasized the need for all progressive forces to unite in the struggle against fascism. The party avoided talk of revolution, endeavored to project an image of Americanism, and supported a broad range of social reforms, especially the building of a strong labor movement. Oppenheimer's involvement was typical of many people who were close to the party but not card-carrying members: he contributed to strike funds of left-leaning unions, helped establish a teacher's union, and joined the American Committee for Democracy and Intellectual Freedom. Above all, he supported the Republican cause during the Spanish Civil War. It was, he said, "the matter which most engaged my sympathies and interests."[23]

Oppenheimer did more than attend fund-raising events to aid the anti-Franco forces; he also dipped liberally into his own ample resources. During the winter of 1937–1938 he would, when asked, make cash donations of "probably never much less than a hundred dollars, and occasionally perhaps somewhat more than that." He gave the money to a friend, Dr. Thomas Addis, a medical researcher at Stanford, who assured him that it would go "straight to the fighting effort, and that it would go through Communist channels."[24] Addis eventually introduced Oppenheimer to Isaac "Pop" Folkoff, a Communist Party functionary. A legendary figure in left-wing circles, a former garment presser and self-taught Marxist philosopher, Folkoff specialized in fund-raising for party causes. Even after the Spanish Civil War ended in the spring of 1939, Oppenheimer continued his payments to Folkoff, now, presumably, for the relief of refugees from Franco's rule.

At this juncture, an unpredictable turn in his personal life strengthened Oppenheimer's commitment to the lost cause of Republican Spain as well as his connection to the Communist Party. In the summer of 1939 he met Katherine Harrison. They soon fell in love, and in the fall of 1940 she went

to Reno where she obtained a divorce from her husband, Dr. Stewart Harrison; on November 1 she and Oppenheimer were married. Katherine had once been a member of the Communist Party, and she had formerly been married to a party leader, Joe Dallet, who had been killed in the Spanish Civil War, fighting as a volunteer in the Abraham Lincoln Brigade. By the time she met Oppenheimer she had ended her affiliation with the party but she had not, and could not, sever her personal ties to Steve Nelson, a communist who had been Dallet's comrade-in-arms. Disengaged as Katherine was from radical politics, Oppenheimer recalled, "when I met her I found in her a deep loyalty to her former husband."[25]

Nothing in Joe Dallet's background suggested the direction his life would later take. Raised by well-to-do, conservative parents, he attended a private academy, studied French, took piano lessons, toured Europe, and enrolled at Dartmouth. But in his junior year he left college, repudiated his past, and moved to New York City, where he became a longshoreman. In 1929, at the age of twenty-two, he joined the Communist Party. For the next five years he worked as an organizer, first in Chicago and then with steelworkers in Pennsylvania and Ohio. In Youngstown, he ran as the Communist candidate for mayor and congressman. In 1934 he met Katherine and they were married. She joined the party and for two years did general office work, typing letters and running mimeograph machines. By June 1936, tired of this Spartan routine, Katherine left Joe and returned to England to live with her parents. But she never stopped loving him, and in March 1937, when Joe arrived in France on his way to Spain, Katherine met him at the dock. They spent a week or ten days together, rekindling their romance. Katherine wanted to go with Joe to Spain, perhaps to work in an ambulance unit, but the Lincoln Battalion did not permit wives to accompany their husbands.

In Spain, according to a friend, Dallet affected "a tough proletarian style," "a 'hard' manner," a "way of speaking that was deliberately profane and deliberately ungrammatical."[26] He earned a reputation as a strict disciplinarian and was so ardent an ideologue that the Communist Party appointed him a political commissar. Even letters to his wife sometimes had a propagandistic tone. He wrote that those who "can feel the warm bonds and heart-throbs with and of the masses, can never never get seriously demoralized and never lose faith in the ability of the masses to triumph over all difficulties and obstacles," boasted that "the people's army of Spain is rounding into a first-rate war machine," and denounced "the counter-revolutionary role of the Trotskyites." Noticing a volunteer who was "short, built like a gorilla with a chest like a barrel, covered from head to toe with marvelous tatooes," Dallet ex-

claimed, "of such stuff is the proletariat made." In one of his last letters he wrote: "It's a bloody interesting country, a bloody interesting war and the most bloody interesting job of all the bloody interesting jobs I've ever had, to give the fascists a real bloody licking."[27]

While Dallet was training in Spain, Katherine continued to seek a way to join him. At long last a job was arranged for her, and on July 19 Dallet wrote: "Wonderful news. You can come." Katherine was to go to Paris where she would meet someone who would "put you through." But she then underwent an emergency appendectomy from which it took a while to recuperate. On September 15 Dallet wrote, "I hope to be seeing you soon."[28] In October, however, when Katherine got to Paris, Dallet's unit was already involved in the Battle of Fuentes de Ebro, in which eighty Americans were killed and 150 wounded. On October 17 Dallet died a hero's death, leading his men in a charge against vastly superior odds and being cut down by machine-gun fire.

Arriving in Paris, Katherine heard the tragic news from Steve Nelson. A Communist Party official whom she had met in Youngstown, Nelson had gone to Spain with Dallet and had himself been seriously wounded at Belchite. He was in Paris because he was trying to obtain a visa to go to Moscow for a celebration marking the twentieth anniversary of the Russian Revolution, at which he was supposed to bring greetings from the volunteers in Spain. Nelson spent most of a week with Katherine, comforting her, reminiscing about Joe, and explaining that her desire to go to Spain—even after her husband's death, she said, "I was emotionally involved in the Spanish cause"—was no longer feasible. Asked later what she had talked about with Nelson, she replied, "Joe, himself, myself."[29]

Katherine Dallet's bond with Steve Nelson, knit by grief and perhaps remorse, ensured that they would remain close friends. In the winter of 1938, Nelson recounted, when he and his wife were living in New York City, "Kitty Dallet moved in with us. Her life was in turmoil then, but she knew she could stay with us as long as need be." Eventually she moved to the West Coast, as did Nelson who went there on Communist Party business in the fall of 1939. Attending a rally for Spanish refugee relief, Nelson heard Robert Oppenheimer give "a good talk about the significance of the Spanish fight." Afterward, Oppenheimer approached him and said: "I'm going to marry a friend of yours, Steve." Later, Oppenheimer invited Nelson to his home "to get together with some of his friends from the academic community who wanted to meet someone who had been in Spain." In the fall of 1941, Nelson remembered, on his daughter's second birthday, there was a knock on the door,

"and there was Robert, his blue eyes twinkling under the porkpie hat he always wore, with a birthday present."[30]

Oppenheimer attended his last rally in support of Spain on December 6, 1941, the Saturday evening before the attack on Pearl Harbor. But his emotional investment in the Loyalists and, more broadly speaking, in the cause of antifascism never waned. How could it? By making his contributions to Spanish relief directly to the Communist Party, Oppenheimer was in a sense paying homage to his wife's former husband. Yet however generous his financial sacrifice, it could never compare with Joe Dallet's ultimate sacrifice. Early in 1943, when Oppenheimer was about to leave Berkeley for Los Alamos, he sought out Dallet's comrade Steve Nelson. "He appeared excited to the point of nervousness," Nelson recalled: "He couldn't discuss where he was going, but would only say that it had to do with the war effort. We chatted, mostly about Spain and the war, and exchanged good-byes. His last comment was that it was too bad that the Spanish Loyalists had not been able to hold out a little longer so that we could have buried Franco and Hitler in the same grave."[31]

When Oppenheimer moved to Los Alamos to direct the Manhattan Project he brought with him a set of deeply rooted convictions—that ethical judgments had rational foundations, that the highest form of virtue consisted of accepting one's destiny, and that the war against fascism was a conflict of good against evil. Those beliefs would quiet whatever doubts he might otherwise have felt about unlocking the secret of the atom, harnessing its power for military purposes, or unleashing its destructive force.

THE ATOMIC BOMB: "A FIRECRACKER OVER A DESERT"

In September 1942 the United States Army placed General Leslie R. Groves in charge of the top-secret project to build an atomic bomb. In October Groves met J. Robert Oppenheimer in Berkeley, quickly concluded that he was "a real genius," and decided he was the right person to oversee the scientific effort.[32] Groves offered him the directorship of the laboratory despite the reservations of Army Counter Intelligence officials who knew all about his left-wing background and associations. In November Oppenheimer selected Los Alamos as the site for the laboratory, and he moved there in March 1943. Eventually, more than ten thousand people would be employed on the Manhattan Project.

According to Hans Bethe, who headed the Theoretical Division at Los Alamos, the success of the project "grew out of the brilliance, enthusiasm and charisma with which Oppenheimer led it."[33] Oppenheimer recruited the top-flight scientists whose services he considered essential through an artful blend of cajolery and flattery. He appealed not only to their patriotism but also to their intellectual curiosity, their desire, that is, to share in the excitement of doing a kind of physics that had never been attempted. Once he had persuaded them to move to Los Alamos, Oppenheimer inspired such strong feelings of camaraderie that many physicists would remember the Manhattan Project as a "magnificent" or a "golden" time. "I found a spirit of Athens, of Plato, of an ideal Republic," one of them recalled.[34]

Because he regarded Oppenheimer as indispensable, Groves defended him even when his nonchalance regarding security arrangements drove Counter Intelligence officers to despair. In mid-June 1943, for example, Oppenheimer met his former lover, Jean Tatlock, in San Francisco, had dinner with her, and spent the night at her apartment. Because she had been (and might still be) a Communist Party member, Army Counter Intelligence, which had been trailing Oppenheimer, wanted him removed as director. But Groves maintained in July that "he is absolutely essential to the project."[35] (Oppenheimer never saw Tatlock again; six months later she committed suicide.)

Again, in August 1943 Oppenheimer advised Counter Intelligence officers that he had been told that George Eltenton, an English chemical engineer, had means of getting technical information to Russian scientists. Oppenheimer had heard this from Haakon Chevalier, an old friend who taught French literature at Berkeley and who belonged to a number of Communist front organizations. To avoid implicating Chevalier, Oppenheimer concocted a confusing tale, or as he later called it, a "cock and bull story," alleging that three other scientists had also been approached. Not until December, at Groves's explicit order, did Oppenheimer provide Chevalier's name, and even then he did not tell the full truth about the incident. To Groves, however, Oppenheimer's behavior merely showed that he had "the typical American schoolboy attitude that there is something wicked about telling on a friend."[36]

Groves later recalled that when he was assigned to the atomic bomb project he was instructed "to produce this at the earliest possible date so as to bring the war to a conclusion . . . any time that a single day could be saved," Groves remembered being told, "I should save that day."[37] His loyalty to Oppenheimer can be explained largely by his belief that no other physicist could get a bomb built as quickly. In time, however, Groves discovered something

else about Oppenheimer: he was a forceful advocate of the need to use the bomb, and to use it in such a way as to exhibit its awesome power.

This became evident in October 1944 when Captain William S. Parsons, a navy officer who headed the Ordnance Division at Los Alamos, wrote to Oppenheimer complaining that some of the physicists seemed to be more interested in experiments that had purely theoretical implications than they were in developing a deliverable weapon. Oppenheimer forwarded Parsons's memorandum to General Groves, adding: "I agree completely with all the comments of Captain Parsons' memorandum on the fallacy of regarding a controlled test as the culmination of the work of this laboratory. The laboratory is operating under a directive to produce weapons; this directive has been and will be rigorously adhered to." The only reason to schedule a test, Oppenheimer added, was that it "appears to be a necessary step in the development of a weapon."[38]

Once it was clear that the laboratory would indeed produce an atomic bomb, it was necessary to choose a target, or targets, in Japan. On May 10–11, 1945, a newly formed Target Committee met at Los Alamos. Oppenheimer prepared the agenda, which, along with various technical matters, included a consideration of "Psychological Factors in Target Selection" and the bomb's "Radiological Effects." The committee specified that it wanted "important targets in a large urban area of more than three miles diameter" that were "capable of being damaged effectively by blast" and were "likely to be unattacked by next August." The Air Force had agreed to reserve five targets that met these criteria, among them Kyoto, Japan's ancient capital and cultural center. The Committee concluded: "There is the advantage that Kyoto is an intellectual center for Japan and the people there are more apt to appreciate the significance of such a weapon as the gadget." Hiroshima offered different advantages: "There are adjacent hills which are likely to produce a focusing effect which would considerably increase the blast damage. Due to rivers it is not a good incendiary target." Oppenheimer endorsed these recommendations, although, in the end, Secretary of War Henry L. Stimson decided to spare Kyoto because of its historical and cultural significance.[39]

Oppenheimer also agreed with the need for "making the initial use sufficiently spectacular for the importance of the weapon to be internationally recognized when publicity on it is released." Warning that dangerous doses of radiation would necessarily accompany such a blast, he urged that sensible precautions be taken. His concern, however, extended only to the well-being of American airmen: "The basic recommendations of this memo are (1) for radiological reasons no aircraft should be closer than 2 1/2 miles to the point

of detonation (for blast reasons the distance should be greater) and (2) aircraft must avoid the cloud of radio-active materials."[40]

Three weeks later Oppenheimer attended a crucial meeting of the Interim Committee of the War Department and its Scientific Advisory Panel. Besides Oppenheimer, the panel members were Arthur H. Compton, Enrico Fermi, and Ernest O. Lawrence. Meeting in Washington on May 31 and June 1, they recommended that the atomic bomb be used without prior warning. The scientists explained that "the visual effect of an atomic bombing would be tremendous. It would be accompanied by a brilliant luminescence which would rise to a height of 10,000 to 20,000 feet. The neutron effect of the explosion would be dangerous to life for a radius of at least two-thirds of a mile." Oppenheimer favored several simultaneous strikes, but his proposal was rejected partly because it was thought that the use of one bomb would make for a more dramatic contrast with the regular pattern of Air Force bombardment.[41]

A final opportunity to reevaluate the use of atomic bombs came on June 16, when the Scientific Advisory Panel considered a report presented to the secretary of war by James Franck of the University of Chicago's Metallurgical Laboratory, itself a division of the Manhattan Project. Acutely sensitive to the political implications of atomic energy, Franck urged that nuclear weapons "be considered as a problem of long-range national policy rather than of military expediency." Because it was impossible to safeguard atomic secrets forever, he reasoned, the only way to prevent an uncontrolled arms race was to foster an atmosphere of international trust. To accomplish that, a demonstration of the bomb "might best be made, before the eyes of representatives of all the United Nations, on the desert or a barren island." After such a test, if Japan still refused to surrender, "the weapon might perhaps be used against Japan if the sanction of the United Nations (and of public opinion at home) were obtained, perhaps after a preliminary ultimatum to Japan to surrender or at least to evacuate certain regions as an alternative to their total destruction." The report was signed by Franck, Leo Szilard, Eugene Rabinowitch, Glenn T. Seaborg, and three other prominent physicists.[42]

Even as he transmitted the Franck Report to Secretary Stimson, Arthur H. Compton expressed serious doubts about its conclusions: a failure to use the bomb might lengthen the war and cost American lives, he explained, and without a military demonstration the world would never understand "what was to be expected if war should break out again."[43] Compton soon discovered that Fermi and Lawrence agreed with him—and so did Robert Oppenheimer. The panel of scientists declared that they had "no claim to special competence in

solving the political, social, and military problems which are presented by the advent of atomic power." They feared that a "purely technical demonstration" might fail, thereby exposing the United States to ridicule; and even if it succeeded, it would use up one of the few bombs likely to be ready. Accordingly, "we can propose no technical demonstration likely to bring an end to the war; we see no acceptable alternative to direct military use."[44]

Oppenheimer later described what was running through the minds of the advisory panel: "We did say that we did not think that exploding one of these things as a firecracker over a desert was likely to be very impressive."[45] To appreciate the destructive power of the bomb, that is, one had to let it do its destructive work. Oppenheimer shared the view, widely held by his fellow physicists, that the ultimate justification for creating such a terrible weapon was that it promised, by its very destructiveness, to usher in a new age in which war would be unthinkable. That is why he came to view the atomic bomb as "a great force for peace." The existence of such weapons, he said, ultimately "intensifies the urgency of our hopes—in frank words, because we are scared."[46]

Robert Jay Lifton has argued that physicists during the war were highly susceptible to "nuclearism," which he defines as "the passionate embrace of nuclear weapons as a solution to death anxiety and a way of restoring a lost sense of immortality. Nuclearism is a secular religion, a total ideology in which 'grace' and even 'salvation'—the mastery of death and evil—are achieved through the power of a new technological deity. The deity is seen as capable not only of apocalyptic destruction but also of unlimited creation." As a description of Oppenheimer's outlook this undoubtedly goes too far. Yet Oppenheimer surely exhibited, as Lifton says, a "reliance on the weapon to demonstrate its massive evil on behalf of ultimate good." His vision "was the vision of a gifted scientist who had in a sense merged with the weapon he had done so much to bring about."[47]

The merger was not fully complete until mid-July 1945. As the final preparations were being made for the test at Alamogordo, Oppenheimer learned of a petition that had been drafted by Leo Szilard and signed by sixty-nine physicists at the Metallurgical Laboratory. The petition was addressed to President Harry S. Truman. Written in measured yet certain tones, it urged him not to use the atomic bomb "unless the terms which will be imposed upon Japan have been made public in detail and Japan knowing these terms has refused to surrender," and, in any event, not to use it "without seriously considering the moral responsibilities which are involved." On July 10, Szilard wrote to Oppenheimer explaining that although a petition might not

have much actual effect, "from a point of view of the standing of the scientists in the eyes of the general public one or two years from now it is a good thing that a minority of scientists should have gone on record in favor of giving greater weight to moral arguments." Szilard sent the petition to Los Alamos hoping to attract additional signatures; Oppenheimer refused to permit its circulation.[48]

Only after the bombing of Hiroshima and Nagasaki did Oppenheimer voice the fears, possibly even the doubts, he had suppressed during the war. The development of nuclear energy, he said in a farewell speech to the staff at Los Alamos, meant that the great powers must come to their senses. If nations did not agree to control atomic weapons but simply added them to their arsenals, he remarked, "then the time will come when mankind will curse the names of Los Alamos and of Hiroshima."[49] In October 1945, meeting President Truman for the first time, Oppenheimer said despairingly, "I feel we have blood on our hands;" Truman merely replied: "Never mind. It'll all come out in the wash."[50] But Oppenheimer was not easily reassured. As late as 1948 he was asserting: "In some sort of crude sense which no vulgarity, no humor, no overstatement can quite extinguish, the physicists have known sin; and this is a knowledge which they cannot lose."[51]

THE HYDROGEN BOMB

Although Japan surrendered in August 1945, Oppenheimer continued to direct the Los Alamos laboratory until November, when he returned to his professorship at the California Institute of Technology. Soon thereafter he arranged to resume his joint appointment at the University of California at Berkeley. In the spring of 1947 he accepted the directorship of the Institute of Advanced Study and that October moved to Princeton. Earlier in the year he was appointed to the General Advisory Committee (GAC) of the Atomic Energy Commission and was elected chairman, a position he held until mid-1952. No longer involved in theoretical research, Oppenheimer during this period acted as a public advocate for science, an administrator, and a high-level policy advisor. He served on so many advisory bodies and wrote so many official reports, Alice Kimball Smith and Charles Weiner explain, that in some instances "Oppenheimer was reporting to Oppenheimer."[52]

Oppenheimer recognized that his radical activities before the war, his "indiscretions" he called them, represented a potential threat to his public position. "I am worried about the wild oats of all kinds which I have sown in the

past," he confessed in September 1945, and his worries naturally increased as Cold War tensions escalated, anticommunist hysteria mounted, and some of his former associates were dragged before congressional investigating committees.[53] Consequently, he carefully steered clear of any involvements that might prove in the least embarrassing. In August 1947, for example, he was asked to sign a manifesto marking the twentieth anniversary of the executions of Nicola Sacco and Bartolomeo Vanzetti, the Italian anarchists who were widely assumed to have been framed on a murder charge and sent to the electric chair for their radical views. The manifesto used the occasion to "appeal for resistance to all attempts through propaganda and demagogic politicians to create mob hysteria against Communist methods while at the same time we declare our unceasing opposition to those methods." Eleanor Roosevelt signed the document, as did Reinhold Niebuhr, Walter Reuther, and many others, but Oppenheimer begged off. Although he agreed with it, he said, "Please do not urge that I sponsor the manifesto: it deals with things very far from my field of competence, & where my word neither should nor would have weight. But if my encouragement is of any help, that you have."[54]

In his acknowledged field of competence, where his word carried immense weight, Oppenheimer could not so easily avoid controversy. This was especially true after the Soviet Union exploded an atomic device on August 29, 1949, ending the existing American monopoly. On September 23, after analysis of the radioactive debris confirmed that it was indeed a nuclear explosion, the Truman administration announced the frightening news to the public. The question then became whether the United States should embark on a crash program, analogous to the wartime Manhattan Project, to build a hydrogen or "super" bomb. That question came before the General Advisory Committee when it met in Washington on October 29–30, 1949. Eight of the nine members, all except Glenn T. Seaborg, were present, with Oppenheimer in the chair.

Advocates of the crash program—and there were many, both inside government and without—made two key arguments: first, Russia would surely attempt to develop such a weapon, and if the attempt succeeded and was not matched by the United States, the balance of military power would shift decisively in favor of Russia; second, the development of a "super" posed no ethical problem because the difference between atomic bombs and hydrogen bombs was only a matter of degree, not kind. In an ideal world, perhaps, such a weapon would not be required. But in the real world, the United States needed a weapon sufficient to deter Russia because "total power in the hands of total evil will equal destruction."[55]

The problem with this view from the standpoint of opponents of the crash program was that, as Herbert F. York has observed, "no one then knew how to make a 'super.' About all that was then known for certain was that, in principle, the energy was there."[56] Consequently, an all-out effort to determine the feasibility of a thermonuclear bomb ran the very real risk of diverting resources from the ongoing, successful nuclear program. Finally, critics asserted, the difference between atomic and hydrogen weapons was, indeed, a difference in kind, because the superbomb, by virtue of its enormously destructive power, could not be limited to use against a military target.

This last argument profoundly influenced Oppenheimer and his colleagues on the GAC, who unanimously recommended against the crash program. Because "the weapon is from a technical point of view without limitations with regard to the damage that it can inflict," it would necessarily destroy countless innocent people: "Its use therefore carries much further than the atomic bomb itself the policy of exterminating civilian populations." The GAC report proposed two alternatives: a "booster" program to support further research into the thermonuclear process and the feasibility of producing a superbomb; and "an intensification of efforts to make atomic weapons available for tactical purposes, and to give attention to the problem of integration of bomb and carrier design in this field." By expanding its arsenal of nuclear weapons, the report explained, the United States could adequately protect itself.

The report also noted that the scientists were "somewhat divided as to the nature of the commitment not to develop the weapon," and some of those divisions emerged in two addenda. One, signed by Enrico Fermi and Isadore I. Rabi, restated some of the report's conclusions regarding the development of a thermonuclear bomb, but more unequivocally: "By its very nature it cannot be confined to a military objective but becomes a weapon which in practical effect is almost one of genocide. It is clear that the use of such a weapon cannot be justified upon any ethical ground which gives a human being a certain individuality and dignity even if he happens to be a resident of an enemy country." Because the release of radioactivity would contaminate large areas, and because there were no inherent limits to the weapon's destructiveness, "It is necessarily an evil thing considered in any light." To avoid putting the United States in "a bad moral position," Fermi and Rabi thought the president should tell the American people "that we think it wrong on fundamental ethical principles to initiate a program of development of such a weapon."

Oppenheimer and the five other members of the GAC shared most of these sentiments, but not all of them. Like Fermi and Rabi, they maintained

that a thermonuclear bomb posed dangers that far outweighed any military advantage, that it differed fundamentally from an atomic bomb because of its limitless power, that it created a grave risk of radioactivity, and that "its use would involve a decision to slaughter a vast number of civilians" and so it "might become a weapon of genocide." They also believed that if Russia succeeded in making a superbomb and used it against the United States, "reprisals by our large stock of atomic bombs would be comparably effective to the use of a super." They concluded, therefore, that "a super bomb should never be produced." But that conclusion derived from practical considerations, a rational balancing of pros and cons, rather than from abstract moral imperatives. Strikingly absent were references of the kind Fermi and Rabi had made to evil, morality, and ethics.[57]

So Oppenheimer certainly took a considerably more disapproving view of the hydrogen bomb than he had of the atomic bomb. He noted that a decision not to proceed with the superbomb offered "a unique opportunity of providing by example some limitations on the totality of war and thus of limiting the fear and arousing the hopes of mankind," a comment he would never have made about the atomic bomb.[58] Yet while opposing a crash program in 1949, Oppenheimer was perfectly willing to support a booster program of basic research. Indeed, on the eve of the October meeting he wrote that it would be "folly to oppose the exploration of this weapon. We have always known it had to be done; and it does have to be done."[59] Moreover, while he believed the world would be better off if the super were never developed, he did not ground his objections, as Fermi and Rabi did, in "fundamental ethical principles."

In any event, the scientists' recommendations were not followed. Although the five members of the Atomic Energy Commission voted against a crash program by a three-to-two margin, President Truman decided to go ahead with it. On January 31, 1950, after consulting with AEC Chairman David Lilienthal, Secretary of Defense Louis Johnson, and Secretary of State Dean Acheson, and finding only Lilienthal opposed to the superbomb, Truman announced that he was directing the AEC to explore the feasibility of developing thermonuclear weapons. Learning of the decision, Oppenheimer was heard to remark, "This is the plague of Thebes."[60]

For more than a year, efforts by Edward Teller, Stanislaw Ulam, and physicists at Los Alamos and elsewhere to construct a superbomb were unsuccessful. Although Oppenheimer did nothing to retard their work, neither did he offer any encouragement. His influence among physicists was such, however, that some proponents of the crash program thought his reservations dis-

suaded scientists from working on the project, although no evidence of such a negative influence was ever produced. What is certain is that Oppenheimer continued to believe that the ever-growing stockpile of atomic weapons adequately equipped the United States, if the need arose, "to engage in total war, to carry the war to the enemy and attempt to destroy him."[61]

Not until February and March 1951 did Ulam and Teller discover the principle that made possible the building of a hydrogen bomb. It was Ulam who conceived "a dramatically new approach to designing a thermonuclear weapon," and Teller who proposed the necessary refinements. In May the "Greenhouse" tests proved beyond any doubt that it was possible to produce a thermonuclear reaction. And so in June the General Advisory Committee reassembled, this time at Princeton, along with members of the Atomic Energy Commission, the Joint Committee on Atomic Energy, the Los Alamos staff, and knowledgeable physicists to learn about the recent developments.

As Teller and his associates explained their concept, which gave every indication of solving problems that had hitherto been insoluble, Oppenheimer, like everyone else, was caught up in a wave of excitement. Captivated, indeed entranced by the sheer beauty of the physics, Oppenheimer, according to Freeman Dyson, said that the Ulam-Teller formulation was "a sweet and lovely and beautiful job."[62] Gordon Dean, the chairman of the AEC, noted that Oppenheimer was "enthusiastic" and "almost thrilled" at the breakthrough.[63] Oppenheimer later characterized his own feelings at the time: the explanation was "technically so sweet that you could not argue" because "when you see something that is technically sweet, you go ahead and do it."[64]

On November 1, 1952, the United States went ahead and did it, testing a thermonuclear device that exploded with a force of 10.4 megatons, a thousand times more powerful than the bomb that leveled Hiroshima. The mushroom cloud, which reached a height of twenty-seven miles, "really filled up the sky," an observer reported: "It was awesome. It just went on and on." A sailor on a ship thirty miles away wrote home: "You would swear that the whole world was on fire." The blast obliterated the Pacific island of Elugelab. As Richard Rhodes explains: "The fireball had vaporized the entire island, leaving behind a circular crater two hundred feet deep and more than a mile across filled with seawater, a dark blue hole punched into the paler blue of the shallow atoll lagoon."[65]

By then, however, Robert Oppenheimer was no longer in a policy-making position. In July his term on the GAC expired and he did not seek reappointment. Though never an enthusiastic supporter of the hydrogen bomb, he had not been an outright opponent, either. He had voted against a crash

program, but had backed a booster program; he had based his reservations on practical considerations, but had not endorsed Fermi's and Rabi's ethical objections; he had let it be known that he was opposed to thermonuclear weapons, but in the end had shown unbounded enthusiasm for the physics that made them possible. He viewed the hydrogen bomb much differently than he had once viewed the atomic bomb, but not differently enough, it turned out, to spare him the anguish that awaited him at his security clearance hearing.

THE ATOMIC ENERGY COMMISSION HEARING: THE CONFESSION

On May 12, 1953, Federal Bureau of Investigation director J. Edgar Hoover received a visit from Senator Joseph McCarthy, chairman of the Government Operations Committee, and his counsel Roy Cohn. According to Hoover, McCarthy said "that he wanted to discuss confidentially with me the matter of his Committee taking up for investigative purposes the activities of J. Robert Oppenheimer, the scientist." Hoover immediately replied that "I thought he had a number of problems to consider before embarking upon this project." Chief among them were that Oppenheimer had performed crucial work for the nation during the war and had maintained extensive contacts with scientists all around the world. All things considered, Hoover added, "whatever the Senator's Committee did concerning Oppenheimer should be done with a great deal of preliminary spade work so that if and when the Committee moved into the open it would have substantive facts upon which to predicate its actions. The Senator said he shared these views also."[66] It was not the kind of case, Hoover warned, "which should be prematurely gone into solely for the purposes of headlines."[67]

Over the next few months, however, Oppenheimer's position grew increasingly precarious. In August the Soviet Union tested its own hydrogen device. Although less powerful than the American model and not as yet in deliverable form, it nevertheless frightened American policymakers who had not expected the Russian program to advance so quickly. In November Senator McCarthy began directing his fire at the Eisenhower administration, charging that it with a failure to recognize the gravity of the communist threat. In November, also, William E. Borden, formerly the executive director of the Joint Congressional Committee on Atomic Energy, wrote to the Federal Bureau of Investigation, claiming that "more probably than not"

Oppenheimer is "an agent of the Soviet Union."[68] The FBI forwarded Borden's letter to the Atomic Energy Commission, the Defense Department, and the White House. On December 3, with these allegations swirling about, and with a McCarthy-led attack on the administration's failure to weed out subversives a distinct possibility, President Dwight D. Eisenhower erected a "blank wall" between Oppenheimer and information pertaining to national security.

The chairman of the Atomic Energy Commission, Lewis Strauss, although no friend of Oppenheimer's, urged him to resign his consultant's contract quietly, without any public fuss. (The contract had been renewed for a year in June, just before Strauss was named chairman.) But Oppenheimer refused to take the easy way out. Determined to clear his name and confident that he could, he insisted on a formal hearing. On December 23, Strauss sent Oppenheimer a letter containing twenty-four allegations, twenty-three of them relating to his radical associations and affiliations before 1946, and one pertaining to his having "slowed down" the development of the hydrogen bomb; all of these raised questions "about your veracity, conduct, and even your loyalty."[69] As he prepared for the hearing, Oppenheimer told a friend, the physicist Lee DuBridge, "the whole thing is damn nonsense," adding "the main thing that I have to do is going through the rigamarole and it's a major and complicated rigamarole."[70]

Just how complicated Oppenheimer had no way of knowing.[71] The hearing was held from April 12 to May 6 before a Personnel Security Board made up of Gordon Gray, president of the University of North Carolina; Ward Evans, a retired professor of chemistry; and Thomas Morgan, the retired chairman of Sperry Gyroscope. Breaking with precedent, the AEC retained an outside lawyer, Roger Robb, to present its case and permitted him to meet privately with the three board members to review Oppenheimer's security file in advance of the hearing. Oppenheimer selected a prominent attorney, Lloyd K. Garrison, to represent him, but Garrison lacked the needed security clearance and on several occasions had to leave the hearing room when sensitive matters were being discussed.

Then, too, the AEC did not have to prove beyond a reasonable doubt that Oppenheimer was a security risk; rather, Oppenheimer had to persuade the board that he was not one. To do this, he thought, required that he be cooperative, even to the extent of answering questions about the political affiliations of friends and former students. In effect, he played the role of an informer, however distasteful he found it. At one point, after listing a number of names, he was asked, "Would you break them down? Would you tell

us who the Communists were and who the fellow travelers were?" Oppenheimer finally exclaimed, "Is the list long enough?"[72] His testimony became public knowledge when the AEC suddenly decided to publish the full text of the hearings, which Oppenheimer and all concerned had assumed would remain secret. In June, when one of the commissioners misplaced a summary of the hearing and of some files on a train, the AEC, fearing an unauthorized leak to the press, decided to publish the hearings in their entirety. (Actually, by then the lost documents had been recovered and so no danger of a leak existed.)

In his opening statement, Oppenheimer admitted that in 1943 he had not told security officials the truth about the Haakon Chevalier incident. "It has long been clear to me that I should have reported the incident at once," he said. But Roger Robb was not satisfied with that admission. Relying on the transcripts of Oppenheimer's conversations with an Army Counter Intelligence officer, Lt. Col. Boris T. Pash, Robb made it appear that Oppenheimer was a habitual, inveterate liar. Robb's first question: "Did you tell Pash the truth about this thing?" "No," Oppenheimer said. Robb's second question: "You lied to him?" "Yes," Oppenheimer replied. Robb's third question: "What did you tell Pash that was not true?" Oppenheimer answered truthfully: "That Eltenton had attempted to approach members of the project—three members of the project—through intermediaries." Robb's fourth question: "What else did you tell him that wasn't true?" When Oppenheimer said, "That is all I really remember," Robb, referring to the transcript, asked a fifth question: "That is all? Did you tell Pash . . ." and then implied that Oppenheimer's failure to remember everything he had said in a decade-old interview amounted to purposeful deception. When Oppenheimer again admitted making up the story, Robb asked: "Why did you do that, Doctor?" One would have thought Oppenheimer's reply—"Because I was an idiot"—would have sufficed. But Robb was not done: "Is that your only explanation, Doctor?"[73]

Robb then moved to another subject designed to cause Oppenheimer acute embarrassment—his visit to Jean Tatlock in the spring of 1943. Although Oppenheimer had admitted seeing her, he had not mentioned staying overnight at her apartment. Now he said that Tatlock had wanted to see him "because she was still in love with me." Robb's follow-up questioning was relentless: "You have no reason to believe she wasn't a communist, do you? . . . You spent the night with her, didn't you? . . . That is when you were working on a secret war project? . . . Did you think that consistent with good security? . . . You didn't think that spending a night with a dedicated Communist?" On one level, Robb's questions were designed to show that Oppenheimer was careless about

security; on another, by reiterating the phrase, "spending the night," he was characterizing Oppenheimer as an adulterer.[74]

Yet Robb wanted more from Oppenheimer than an admission that he had once lied to security officials or had behaved indiscreetly. He also wanted Oppenheimer to confess that, having worked on the atomic bomb, he could not have had moral scruples about the hydrogen bomb. Robb's implication was clear: if Oppenheimer's reservations about the hydrogen bomb were not ethically derived, they must have been politically motivated, motivated, that is, by pro-Russian sentiment. Robb wanted Oppenheimer to concede that Hiroshima and Nagasaki proved that there are, in fact, no moral limits to what a scientist should do in the interests of the state, no ethical considerations that a scientist should place above the nation's security. And so Robb began:

Q. . . . Doctor, you testified, did you not, that you assisted in selecting the target for the drop of the bomb on Japan?
A. Right. . . .
Q. You knew, did you not, that the dropping of that atomic bomb on the target you had selected will kill or injure thousands of civilians, is that correct?
A. Not as many as turned out.
Q. How many were killed or injured?
A. 70,000.
Q. Did you have moral scruples about that?
A. Terrible ones.
Q. But you testified the other day, did you not, sir, that the bombing of Hiroshima was very successful?
A. Well, it was technically successful.
Q. Oh, technically.
A. It is also alleged to have helped end the war.
Q. Would you have supported the dropping of a thermonuclear bomb on Hiroshima?
A. It would make no sense at all.
Q. Why?
A. The target is too small.
Q. The target is too small. Supposing there had been a target in Japan big enough for a thermonuclear weapon, would you have opposed dropping it?
A. This was not a problem with which I was confronted.
Q. I am confronting you with it now, sir.

A. You are not confronting me with an actual problem. I was very relieved when Mr. Stimson removed from the target list Kyoto, which was the largest city and the most vulnerable target. I think this is the nearest thing that was really to your hypothetical question.
Q. That is correct. Would you have opposed the dropping of a thermonuclear weapon on Japan because of moral scruples?
A. I believe I would, sir.
Q. Did you oppose the dropping of the atom bomb on Hiroshima because of moral scruples? . . .
A. We set forth our—
Q. I am asking you about it, not "we."
A. I set forth arguments against dropping it. . . . But I did not endorse them.
Q. But you supported the dropping of the atom bomb on Japan, didn't you?
A. What do you mean support?
Q. You helped pick the target, didn't you?
A. I did my job which was the job I was supposed to do. I was not in a policymaking position at Los Alamos. I would have done anything that I was asked to do, including making the bombs in a different shape, if I had thought it was technically feasible.[75]

Even as shrewd an inquisitor as Roger Robb may not have expected that a man of Oppenheimer's formidable intellect would appear so befuddled. The problem was that, when asked whether he had had moral scruples about using the atomic bomb, he replied, "terrible ones." But Oppenheimer had given no sign of having had such scruples before August 1945. To the contrary, his religious, philosophical, and political convictions had made him into a resolute, indeed zealous nuclearist. Why, then, did he answer Robb's question as he did? Perhaps he was reading back into the war years the very real doubts that assailed him after August 1945, when the immense human tragedy of Hiroshima and Nagasaki became known, doubts he expressed in his famous remark about the physicists having known sin. Then again, perhaps Oppenheimer was, whether consciously or not, seeking to establish a credible basis for having opposed the hydrogen bomb by claiming he had experienced moral qualms about the atomic bomb, thereby demonstrating his consistency.

Moreover, as we have seen, his reservations about the hydrogen bomb were not, like Fermi's and Rabi's, based on its incompatibility with "fundamental ethical principles" but rather on pragmatic considerations. The true

continuity in Oppenheimer's view of nuclear and thermonuclear weapons was between his statement to Robb that he would have done anything he was asked to do during the war if it was "technically feasible" and his remark about the Teller-Ulam formulation for the hydrogen bomb: when you see something that is "technically sweet" you go ahead and do it.

CONCLUSION: THE TRAGEDY

One inevitably comes away from the story of J. Robert Oppenheimer with a profound sense of tragedy. An inexcusable injustice was done to a loyal, patriotic American when the Atomic Energy Commission voted to deny him security clearance on the grounds that his associations with radicals revealed "fundamental defects in his character" that passed the "tolerable limits of prudence and self-restraint."[76] The vote came on June 28, 1954, two days before his consultant's contract would have expired. An ideal opportunity to rectify the injustice was lost when in December 1963 the government presented Oppenheimer with the Fermi Award, thereby tacitly admitting its mistake, and yet did not restore his security clearance, which, in Oppenheimer's view, may well have been the more important thing to do.

Oppenheimer was also a tragic figure because of how he responded to the ethical dilemmas he faced as a scientist. His outlook was shaped by the Ethical Culture movement's emphasis on reason, the Bhagavad Gita's teachings on the duties of a warrior, and the Popular Front's passionate antifascism. That outlook led Oppenheimer to commit himself to the atomic bomb project, but to commit himself so completely that he opposed the efforts of James Franck, Leo Szilard, and others to ensure that adequate attention was paid to the moral implications of using the bomb. Oppenheimer's lack of enthusiasm for developing a hydrogen bomb derived chiefly from fears that a crash program would probably fail and would almost certainly disrupt the nation's nuclear buildup. Once it was shown that a hydrogen bomb could be built, Oppenheimer was drawn, magnetically, to the sheer "beauty" of the physics. It was, therefore, understandable why he would be so vulnerable to Roger Robb's barrage of questions on the relationship between science and ethics

In 1966 Oppenheimer, a chain smoker most of his life, developed throat cancer. He died in February 1967 at the age of only sixty-three. During the war he had been reading John Donne's *Holy Sonnets,* which provided the inspiration for naming the Alamogordo test site, "Trinity." Perhaps a fitting epitaph may be found in another of those poems:

Thou hast made me, and shall Thy worke decay?
Repair me now, for now mine end doth haste,
I run to death, and death meets me as fast,
And all my pleasures are like yesterday.

NOTES

1. H. B. Fletcher to Director, May 14, 1946; Donald E. Roney Report, August 5, 1946, FBI Security File: J. Robert Oppenheimer (Scholarly Resources). (Hereafter cited as FBI File.)

2. Interview with Professor Frederick G. Marcham, June 10, 1979.

3. Fletcher to Director, May 14, 1946, FBI File.

4. Freeman Dyson, *Disturbing the Universe* (New York: Harper & Row, 1979), 6.

5. Alice Kimball Smith and Charles Weiner, eds., *Robert Oppenheimer: Letters and Recollections* (Cambridge, Mass.: Harvard University Press, 1980), 3. See also S. S. Schweber, *In the Shadow of the Bomb: Bethe, Oppenheimer and the Moral Responsibility of the Scientist* (Princeton: Princeton University Press, 2000), 42–53.

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