
Seven Hours of Reminiscences

by Edward Teller



When Shakespeare presented the life story of Henry VI, he wrote it in three parts, and the plays in their entirety ran more than seven hours. The BBC drama compressed the life of J. Robert Oppenheimer into seven hours, a considerable accomplishment since to my mind Henry VI was not nearly as unique, ingenious or self-contradictory a character as Oppenheimer. Most of us probably imagine ourselves and our closest associates to be simpler than we are. However, the complexity of the man whom I knew and worked with makes the television representation seem almost one-dimensional.

The film merely indicates the important contrast of the two historical poles of Oppenheimer's life—his work at Los Alamos and his loss of security clearance. The inadequacy in describing his work is related to the uniqueness of Oppenheimer's accomplishment as wartime director of the Los Alamos Laboratory. Comparable roles outside the scientific community are rare. Much of my life has been spent in laboratories of similar size and nature. I have known many of the directors intimately. For a short time, I was even a director myself. I know of no one whose work begins to compare in excellence with that of Oppenheimer's.

Throughout the war years, Oppie knew in detail what was going on in every part of the Laboratory. He was incredibly quick and perceptive in analyzing human as well as technical problems. Of the more than ten thousand people who eventually came to work at Los Alamos, Oppie knew several hundred intimately, by which I mean that he knew what their relationships with one another were and what made them tick. He knew how to organize, cajole, humor, soothe feelings—how to lead powerfully without seeming to do so. He was an exemplar of dedication, a hero who never lost his humanness. Disappointing him somehow carried with it a sense of wrongdoing. Los Alamos' amazing success grew out of the brilliance,

enthusiasm and charisma with which Oppenheimer led it.

A different perspective on Oppie started to appear in June 1945, a few weeks before the Alamogordo test of the first atomic bomb. I had received a letter from my good friend Leo Szilard* containing a petition from Chicago together with a request that I sign and circulate it among my colleagues at Los Alamos.

The Chicago laboratory, headed by Arthur Compton, had worked on devising the means of production of material for the bomb. Their work had been completed some months earlier, and Szilard, James Franck (nicknamed Pa Franck) and several scientists in the project had some time to consider the political and moral issues related to the bomb itself, a development I knew about since I had recently been in Chicago. The petition they drew up, addressed to the President, pointed out that scientists began work on the atomic bomb because we might have been attacked by this means, but that this danger had been averted. It noted that the ruthless annihilation of cities would be further increased if the bomb were used, as this would set a precedent and open "the door to an era of devastation on an unimaginable scale." The petition asked the President "to rule that the United States shall not, in the present phase of the war, resort to the use of the atomic bombs."

I was inclined to sign the Chicago petition, but I also could not circulate it at Los Alamos without checking the matter with Oppenheimer, first because he was the director but also because I had considerable respect for his opinion. I arranged to talk with him at his office. While the film suggests that other people accompanied me, only Oppie and I were present at this conversation. I began by showing him the petition.

Oppenheimer immediately offered several uncomplimentary comments about the attitudes of the involved Chicago scientists in general and Szilard in particular. He went on to say that scientists had no right to use their

prestige to try to influence political decisions. He assured me that the right decisions would be made by the leaders in Washington who were wise people and understood the psychology of the Japanese. I have the vague impression that he referred to George Marshall as an example of such leadership. My predominant emotion following our conversation was that of relief—I did not have to take any action on a matter as difficult as deciding how the bomb should be employed.

Years later I learned that shortly before this interview Oppenheimer not only had used his scientific stature to give political advice in favor of immediate bombing, but also put his point of view forward so effectively that he gained the reluctant concurrence of his colleagues. Yet he denied Szilard, a scientist of lesser influence, all justification for expressing his opinion.

In the late spring of 1945, four scientists were asked to serve as an advisory panel on the use of the bomb: Arthur Compton from whose laboratory the petition originated, Ernest Lawrence from the isotope separation laboratory at Berkeley, Enrico Fermi (whose sense of political discretion was carried to the point of hardly ever expressing an opinion that differed from the majority),** and Oppenheimer from Los Alamos. Only Fermi and Oppenheimer were aware of the mechanics and expected effects of the bomb itself. Only Oppenheimer advocated immediate use of the bomb.

Secrecy was an unseen member in this group. The flow of information within laboratories, as well as between laboratories, was strictly controlled. Compton and Lawrence favored prior demonstration, but their information about the mechanics of the bomb, particularly those that would affect the possibility of a demonstration, was incomplete. Lawrence held out longest for prior demonstration, but on June 16, 1945 the panel presented a unanimous recommendation for use without prior warning.

I owed Szilard an answer, but I felt it inappropriate to mention my talk with Oppie

as I did not feel that he had authorized me in any way to repeat his opinions. Correspondence at Los Alamos was censored, and I believed it highly likely that Oppie would see my letter. I therefore sent him a copy of my letter to Szilard with a handwritten note:

Dear Oppie,

You may have guessed that one of the men "near Pa Franck" whom I have seen in Chicago was Szilard. His moral objections to what we are doing are in my opinion honest. After what he told me I should feel better if I could explain to him my point of view. This I am doing in the enclosed letter. What I say is, I believe, in agreement with your views. At least in the main points. I hope you will find it correct to send my letter to Szilard.

Edward

I had several reasons for wanting to avoid any further controversy on this issue: as an immigrant, I was particularly aware of my political ignorance; I had not taken sufficient time to think through or discuss the future implications of use versus non-use; and I sincerely wanted to be on friendly terms with Oppie. I have long regretted the fact that I allowed myself to be so easily persuaded.

Immediately after the bomb was dropped on Hiroshima, the feeling of jubilation among many people in Los Alamos as well as Oppenheimer's dramatic quote from the Bhagavad-Gita, "I am the destroyer of the world," made me most uncomfortable. I eventually felt strongly that action without prior warning or demonstration was a mistake.

I also came to the conclusion that al-

*Szilard's Letter was dated July 4, 1945, while my reply, dated July 2, was written a number of days after I received his. In addition, Szilard had not bothered to fill in my name in his form letter. The explanation is simply that Szilard was a man of many idiosyncracies.

**Fermi had lived many years under Fascism, and I suspect this may account for his reticence.

Dear

Inclosed is the text of a petition which will be submitted to the President of the United States. As you will see, this petition is based on purely moral considerations.

It may very well be that the decision of the President whether or not to use atomic bombs in the war against Japan will largely be based on considerations of expediency. On — the basis of expediency, many arguments could be put forward both for and against our use of atomic bombs against Japan. Such arguments could be considered only within the framework of a thorough analysis of the situation which will face the United States after this war and it was felt that no useful purpose would be served by considering arguments of expediency in a short petition.

However small the chance might be that our petition may influence the course of events, I personally feel that it would be a matter of importance if a large number of scientists who have worked in this field went clearly and unmistakably on record as to their opposition on moral grounds to the use of these bombs in the present phase of the war.

Many of us are inclined to say that individual Germans share the guilt for the acts which Germany committed during this war because they did not raise their voices in protest against those acts, Their defense that their protest would have been of no avail hardly seems acceptable even though these Germans could not have protested without running risks to life and liberty. We are in a position to raise our voices without incurring any such risks even though we might incur the displeasure of some of those who are at present in charge of controlling the work on "atomic power."

The fact that the people of the United States are unaware of the choice which faces us increases our responsibility in this matter since those who have worked on "atomic power" represent a sample of the population and they alone are in a position to form an opinion and declare their stand.

Anyone who might wish to go on record by signing the petition ought to have an opportunity to do so and, therefore, it would be appreciated if you could give every member of your group an opportunity for signing.

Leo Szilard

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though the opinions of scientists on political matters should not be given special weight, neither should scientists stay out of public debates just because they are scientists. In fact, when political decisions involve scientific and technical matters, they have an obligation to speak out. I failed my first test in Los Alamos, but I have subsequently stood by this conviction.

It is a remarkable coincidence that with few exceptions (Leo Szilard is the most outstanding), those who favored a prior warning to Japan later argued for continued development of weapons, while those who recommended immediate use of the atomic bomb argued after the war for cessation of all further development. One scientist who withdrew from weapons work and became a tireless opponent of the development of the hydrogen bomb advocated during his Los Alamos years a plan under which the United States would not use any atomic bombs in Japan until the number collected was great enough to bomb several large centers on the same day, thus bringing the war to a sure, immediate end.

On the other hand, Lewis Strauss, a Washington-based Naval officer during the war, knew of the bomb and personally suggested to Secretary of the Navy James Forrestal that the bomb be demonstrated over a forest after warning the inhabitants to evacuate. * In his memoir he devotes a whole chapter to the last days of the war and calls it "A Thousand Years of Regret." However, he became the strongest single supporter of a program to develop the hydrogen bomb.

The film correctly indicates the sharp contrast of Oppenheimer's enthusiastic leadership of the Laboratory prior to the bombing and his distress following the bomb's actual use. In early fall 1945, Oppenheimer passed me on the way to the laboratory. "Touch me," he said. "I just resigned as director." Quite a few of us knew that Oppenheimer was eager to return to the study of physics and that he was talking about "giving Los Alamos back to the

Indians." The future of the laboratory was very much in question.

A few weeks later the decision was made to continue the laboratory at Los Alamos and when Norris Bradbury took over as the new director, he asked me to stay on as head of physics research. I explained that I would stay under one of two conditions: if we were to have a vigorous program for refining fission weapons which included at least twelve tests a year, or if we were to concentrate on the hydrogen bomb. In other words, I was fully willing to participate if our work could make a comprehensive contribution to the nation's continued military strength.

Bradbury explained that he wished that he could promise to fulfill either set of conditions, but taking political realities into account, he could not do so. I thereupon answered that I would return to Chicago to

work on physics with Fermi. (But even then I felt that I should be trying harder to participate.)

That same evening, Oppie and I were at a party at Deke Parsons' ** house. Chatting with Oppie, I repeated my afternoon exchange with Bradbury almost verbatim. Op-

**The Navy generally opposed the use of the bomb without warning, and Strauss, in every way a man who loved his country, was also too honest not to expose all the details of what he considered a tragic error. The Japanese peace overture instructions (identical to the terms of surrender achieved a few weeks later) to Prince Fumimaro Konoye, who was negotiating in Moscow, were decoded by the Navy. Strauss in his memoirs ignores no part of this confusing and for him extremely painful period.*

***Captain Parsons was the scientific representative from the Navy to the Los Alamos Laboratory, and the party celebrated his promotion to Commodore.*

July 2, 1945

Dr. Leo Szilard
P. O. Box 5207
Chicago 80, Illinois

Dear Szilard:

Since our discussion I have spent some time thinking about your objections to an immediate military use of the weapon we may produce. I decided to do nothing; I should like to tell you my reasons.

First of all let me say that I have no hope of clearing my conscience. The things we are working on are so terrible that no amount of protesting or fiddling with politics will save our souls.

This much is true: I have not worked on the project for a very selfish reason and I have gotten much more trouble than pleasure out of it. I worked because the problems interested me and I should have felt it a great restraint not to go ahead. I can not claim that I simply worked to do my duty. A sense of duty could keep me out of such work. It could not get me into the present kind of activity against my inclinations. If you should succeed in convincing me that your moral objections are valid, I should quit working. I hardly think that I should start protesting.

But I am not really convinced of your objections. I do not feel that there is any chance to outlaw any one weapon. If we have a slim chance of survival, it lies in the possibility to get rid of wars. The more decisive a weapon is the more surely it will be used in any real conflict and no agreements will help.

Our only hope is in getting the facts of our results before the people. This might help to convince everybody that the next war would be fatal. For this purpose actual combat use might even be the best thing.

And this brings me to the main point. The accident that we worked out this dreadful **thing should not give us the responsibility of having a voice in how it is to be used. This responsibility must in the end be shifted to the people as a whole and that can be done only by making the facts known. This is the only cause for which I feel entitled in doing something: the necessity of lifting the secrecy at least as far as the broad issues of our work are concerned. My understanding is that this will be done as soon as the military situation permits it.**

All this may seem to you quite wrong. I should be glad if you showed this letter to Eugene and to Franck who seem to agree with you rather than with me. I should like to have the advice of all of you whether you think it is a crime to continue to work. But I feel that I should do the wrong thing if I tried to say how to tie the little toe of the ghost to the bottle from which we just helped it to escape.

With best regards.

Yours,

E. Teller

pie said, "And don't you feel better now?" I said, "No." I also remember that on the same occasion Oppenheimer said: "Our accomplishments in Los Alamos have been remarkable, and it will be a long time before anyone can reproduce them." I felt less optimistic and could not agree with Oppie's attitude. To Bradbury belongs the great credit of having kept the Laboratory alive through difficult years.

On one point, I have always agreed with

Oppenheimer in a most enthusiastic manner: the need for openness of information for the American people. Recently I secured copies of my correspondence with Oppenheimer from his archives.* I discovered that as early as March, 1943, I was already bending his sympathetic ear on the question.

Once a course of action is established, it becomes particularly hard to undo. During the wartime work on the atomic bomb, secrecy seemed imperative. Scientists, whose

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work is based on openness, urged that their findings not be released lest they fall in the hands of the Nazis and Hitler gain the atomic bomb. But having begun in such a way, how does one rid oneself of the cancer of secrecy? I believe that only a drastic measure can now remedy the situation, and I have repeatedly proposed that after the period of one year, all classified material (with a few exceptions such as the routes of our submarines and blueprints for equipment) should be released to the public. To continue classifying anything of a scientific nature for a longer period should require detailed Presidential orders, a practice which would surely limit the number of exceptions.

That the American people—who in a democracy should and do create our policy of defense—have a *need to know* seems to me to be a truth beyond any question. Yet this truth is contradicted by laws which forbid open discussion, laws which as citizens we are bound to obey. The issue never gained the stature in Oppenheimer's lifetime that it deserved. Today there can be no doubt of the crippling effects of secrecy.

Before leaving the war years, I want to correct a minor historical inaccuracy in the BBC production. Introducing Oppenheimer's opposition to the hydrogen bomb at the Berkeley summer conference in 1942 enables the producers to suggest future developments but results in a skewed perspective. The hydrogen bomb was the main topic at that conference, and unlike the television portrayal, there was no difference of opinion about the propriety of discussing the subject.

Oppenheimer, I was told, actually used this topic in a conversation with Arthur Compton to point out the surprises waiting in the nuclear field and the consequent necessity of establishing a separate laboratory at Los Alamos. One of the first pieces of equipment (for cryogenic work) built at Los

* *All my correspondence prior to 1952 was lost when I left Los Alamos, and Z have only recently begun piecing it back together from other sources.*

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Alamos was related to work on the hydrogen, rather than the atomic, bomb. It was only after we were all at Los Alamos that a strong difference of opinion arose on the advisability of working on the H-bomb *at that time*. The need to pursue this research in the long run was not called into question until after the end of World War II.

Because the United States held a clear monopoly on the atomic bomb in 1945, Oppenheimer began working on and for a plan which the television drama slights. With Lilienthal and Baruch, he drew up a proposal to place all information about control of atomic weapons in the hands of an international agency. Baruch presented the plan to the newly created United Nations. The Soviet delegation insisted that before any discussion of how to assure compliance with the plan could begin, the United States must destroy its nuclear weapons. Since the Soviets were clearly not willing to come to any reasonable agreement on inspection, the Baruch plan was ultimately dropped.

Today the failure is easy to understand. What we thought we were offering—the secrets of atomic explosives—the Soviets had already gained through their very efficient spy system.

In 1949, I returned to Los Alamos on a full-time basis. The political climate had not improved, and few people seemed to share my concern about the possible progress in development of nuclear weapons in the Soviet Union. However, I had decided to make whatever contribution I could to our own defense.

In September of that year, I was in England and visited with Sir James Chadwick, who had been the leader of the British delegation to Los Alamos. I made an unflattering comment about General Groves, and Chadwick, ordinarily a most reticent man, became effusive. According to him, I did not properly appreciate General Groves' dedication and efficiency. Without Groves, insisted Chadwick, the project would never have been successful. American scientists

(but not the British and not American military leaders) had no sense of what it meant to have one's home and family truly endangered by a war. Their determination and dedication were apt to be too little and too late. He ended by insisting that I recall his advice: "I might have need of it."

A few hours after I was back in the United States, it dawned on me that during our conversation, Chadwick probably had known what I had just learned—that the Soviets had exploded an atomic bomb. (An interesting footnote to this event is the fact that without the detection system that was introduced shortly before at the insistence of Lewis Strauss, the United States might have remained in ignorance of the Soviet bomb.) It was then that I called Oppie and was advised, as the film described, that I should "keep my shirt on." This was not the first time since the war had ended that Oppie had made it clear that he was uninterested in using his great talents on defense research problems again.

The BBC production contains to my mind only one major historical flaw. This important point concerns the position of Lewis Strauss, who at the time of the Oppenheimer hearings was the Chairman of the Atomic Energy Commission.* Strauss appears in the film as one of Oppenheimer's main antagonists, but the facts contain a different tragic drama than was conveyed.

Clearly Strauss disagreed with Oppenheimer's belief that new weapons development should be curtailed, and Strauss would have been happy to have a Presidential advisor with a different perspective. However, his role in Oppenheimer's loss of security clearance was quite different than the BBC production suggests.

Early in December, 1953, I went to Strauss' office for a prearranged meeting on some laboratory-related matters. He had been unexpectedly called away so I waited. He returned in uncharacteristic agitation and led me immediately into his office. Pledging me to discuss the issue no further, he told me

of the cause of his late arrival and distress.

I kept Strauss' confidence for many years, but any obligation for silence lapsed long ago. Strauss was appalled because President Eisenhower had called him to the White House and told him to institute official proceedings to review Oppenheimer's security clearance. Strauss told me with real fervor of his hope that the President's decision would be reversed or at least modified. He foresaw disastrous consequences should Oppenheimer's clearance be called into question.

My experience leaves me no room to doubt that Lewis Strauss, far from bringing about these proceedings, wanted to prevent them. Whether Strauss merely foresaw difficult times for the Atomic Energy Commission or whether he had an insight into the future effects on the scientific community, I have no way of knowing.

The film's mistaken sequence—where removal of classified material from Oppenheimer's home occurs before Oppenheimer knows that he had lost his right to retain classified material—and the portrayal of an imaginary meeting of Strauss and Nichols to plot against Oppenheimer create a particularly misleading picture of Strauss. In reality, Lewis Strauss was a sensitive man with a most demanding code of honor. He did not disturb Oppie during his European vacation but, as soon as Oppie returned, called him in to discuss the problem. Strauss explained that a high-ranking official had written the President accusing Oppenheimer of disloyalty, that Oppie had the choice of resigning or having a hearing, and that his clearance would be temporarily suspended either way.**

**After the hearings Oppie remained for many fruitful years as director of The Institute for Advanced Study. Strauss was the chairman of the board of that institute and had earlier been instrumental in securing the directorship for Oppie.*

***The details of this meeting on December 21 are included in Strauss' memoirs, *Men and Decisions* (Doubleday, 1962), pp. 275-9 and 443-5.*

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Oppenheimer asked how long he had for his decision on resignation or hearing, and Strauss explained that because he had already delayed some weeks, he would appreciate the decision on the next day. The classified papers were picked up after this interview. Strauss had not specified that this would occur, but given Oppenheimer's years of experience with security practices, Strauss' omission had many more reasonable explanations than malice.

There is another detail in this section of the film which is in error. When I was called to testify at the hearing, I was, as is shown, met by the attorney for the Atomic Energy Commission, Roger Robb. However, Robb did not give me the FBI file on Oppenheimer. That I never saw. Instead, Robb asked me how I would testify—for or against Oppenheimer's clearance. I had no difficulty with my reply: I would testify for his clearance. Robb then said that he wanted to read a part of the hearing testimony to me. I was a little uncomfortable about this, but an earlier incident seemed to me to have a bearing on what was now appropriate.

Early in 1954, when the question of Oppenheimer's clearance had become public knowledge, I had met Oppie at a small scientific meeting. I expressed my regrets at the nature of his problem. He asked me whether I believed he had behaved in a "sinister" manner. I said that I certainly did not. He then asked me as a favor to go and talk with his lawyer. I agreed to do so and did. Oppenheimer was not present at the interview, and his lawyer told me no novel facts.

However, having been briefed by Oppenheimer's lawyer, I could find no grounds to refuse Robb. Robb then read Oppenheimer's sworn testimony concerning the Chevalier affair from the hearing transcript to me. As the film suggests, this issue proved to be the turning point of the hearing. Oppenheimer testified that he had voluntarily gone to Army security officers with a distorted story which in the end ruined a

friend's life. He had told the intelligence officers that Chevalier had asked three scientists to provide information to the Soviets about the atomic bomb project. When asked why he had done so,* Oppie replied, "Because I was an idiot."

I will never forget the shock that this portion of the testimony produced in me. Robb asked me again, "Should Oppenheimer be cleared?" I could only tell him that I did not know.

My reluctant testimony, given minutes later, was that I definitely considered Oppenheimer loyal, but that because his actions appeared confused and complicated, I would personally feel more secure if public matters would rest in other hands. I was convinced then and continue to believe now that the hearing should never have occurred.

The historical importance of the Los Alamos years are comparatively easy to grasp because of their clearly visible consequence—the use of an incredibly powerful weapon and the end of a terrible war. However, the consequences of Oppenheimer's security clearance are difficult to discern outside the scientific community. They are hardly hinted at in the television drama. Oppenheimer's loss of security clearance partly introduced and partly solidified a deep division among the ranks of American scientists.

After the two events—the use of the atomic bomb and Oppenheimer's loss of clearance, the great majority of scientists felt that it was wrong to work on new weapons. A small minority of scientists, to which I belonged, believed it imperative to work on such weapons if the United States were to be able to defend itself and the free world. For this minority, the events of the past thirty-five years have demonstrated that while the danger from a ruthless adventurer named Hitler was more immediate, the danger from the patient, unrelenting leaders in the Kremlin is in reality greater.

Furthermore, scientists were discouraged from involving themselves with work which

would place them under the vagaries of the security system. Many scientists have never forgiven the damage that was done to a great scientist's reputation. While the origin of the feeling of distrust may have vanished from memory, the residual effect in the scientific community remains. The Oppenheimer hearing was truly as tragic as Strauss feared and combined with the bombing in Japan have resulted in some people today crying, "A plague on both your houses." But distrust of our nation seems about as justified as evaluating one's own bad case of acne as equal in seriousness to a neighbor's case of bubonic plague.

There is one incident depicted in the film which is true in spirit but lacks any factual basis. I could very honestly have said on many occasions to Oppie, "I wish I understood you better." However, I failed ever to do so. Since reading Haakon Chevalier's books about Oppenheimer,** I have wished for understanding even more intensely. These books give evidence that Oppie's early left associations should not be used to interpret him as a dangerous Soviet sympathizer. At the same time, these books provide a hint of the unknown depths that were Oppenheimer's personality. I remain totally unable to form an opinion of what his values and motives were.

The BBC film does not reveal the truth, nor does it offer explanations. But it gives a glimpse into some of the causes of the confusions and divisions from which people in the free world suffer. I hope through these reminiscences to offer a little insight into the contradictions and painful events surrounding that most remarkable person, J. Robert Oppenheimer. ■

* *Chevalier has stated that he told Oppie about a scientist, Eltenton, who was trying to obtain information about the bomb since he believed that Oppie should know this in order to prevent such activities from damaging him or the project. To my knowledge Oppenheimer never contradicted nor validated Chevalier's version.*

***Haakon Chevalier, The Man Who Would Be God (Putnam, 1959), and Oppenheimer: The Story of a Friendship (Braziller, 1965).*

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Reminiscences of a stock operator. to Jesse Lauriston Livermore. Reminiscences of a Stock Operator. Chapter I. I went to work when I was just out of grammar school. I'd go during my lunch hour and buy or sell it never made any difference to me. I was playing a system and not a favorite stock or backing opinions. All I knew was the arithmetic of it. I took my seven Sugar tickets out of my pocket and walked over to the counter, to where the clerk was who marked the tickets when you closed your trades. But I didn't really know why I should get out of the market, so I just stood there, leaning against the counter, my tickets in my hand so that the clerk couldn't see them.