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**Special event commemorating the life and work of  
physicist Leo Szilard (1898-1964)**

Dedication of the Szilard papers, at U.C. San Diego Library.  
Also includes KPBS video "Leo Szilard: The man behind the bomb:  
A postscript with Gertrud Weiss Szilard"

March 22, 1985

1 hour 36 minutes 52 seconds

Speakers: Jonas Salk, Bart Bernstein, Egon Weiss, Gertrud Weiss Szilard  
Interviewers: Allen Greb, Helen Hawkins

Transcribed by: Carla Altomare

[Leo Szilard Papers](#)

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Special event commemorating the life and work of physicist Leo Szilard (1985)  
Leo Szilard Papers

Time	Transcription
0:22	Narrator: Doctor Szilard was told nothing about the experiment. As it was considered that he would be opposed to it.
0:33	Szilard: I knew that this time that it will not be possible to dissuade the government from using the bomb against the cities of Japan. I thought that the time has come for a scientist to go on record against the use of the bomb against the cities of Japan on moral ground. That is why I drafted a petition, which has separated the project. The second petition was dated one day before the bomb was actually tested, at Alamogordo, New Mexico.
1:21	Speaker 1: [counting down] 40, 39, 38, 37, 36, ... 25, 24, 23, 22, 21, 20, [explosion sound]
1:44	Speaker 1: [continues counting down] 9, 8, 7, 6, 5, 4, 3, 2, 1, now [static noise, mushroom cloud shows on screen]
2:07	[A Special Event Commemorating THE LIFE AND WORK OF PHYSICIST LEO SZILARD {1898-1964}]
2:17	[UNIVERSITY OF CALIFORNIA SAN DIEGO March 22, 1985]
2:44	Allen Greb: I want to welcome you all to the opening of the Leo Szilard papers. I for one am extremely pleased to see all of you here and I'm sure Lynda Claassen is too. Lynda Claassen is the head of the department of Special Collections, here at the UC San Diego Library and she was instrumental, I believe, in getting the Leo Szilard papers in our collection, as well as several others that she has in mind for the future. One being the man I work with closely, Herbert York. There are a lot of you here today who need no introduction, and fortunately I'm not one of them, so I'll introduce myself. I'm Allen Greb, I am the assistant director of the University of California Institute on Global Conflict and Cooperation, or IGCC as it is known here and throughout the UC system. And we, we're, extremely pleased and happy to have this collection within the University of California system. I know many of the scholars who will be working through IGCC will be in fact working with these papers. We'll have some short speeches, or some short statements, by a few of the individuals in the audience and the major talk this afternoon to be followed in approximately an hour by wine and cheese reception in the main library itself on the eighth floor where special collections are kept. Chancellor Dick Atkinson, I'm told, will in fact be here today, he probably will not arrive until later, he will probably say a few words at the end of the major talk. Jonas Salk, the head of Salk Institute, will begin our remarks this afternoon. He'll say a few words about why he and Leo Szilard came to La Jolla and to the Salk Institute, and then our major presentation will be given by the historian, Bart Bernstein, from Stanford University, who is an expert on scientist and nuclear weapons policies and is a close personal friend of mine and hopefully, will

be in fact in the history department at UC San Diego come next year, if everything works out fine. If he in fact gives a good presentation today [audience laughs]. And finally, we have Leo's brother in law, Egon Weiss, who will say a few words to wrap up the ceremonies here today. So, Jonas, if you'd like to begin.

5:16 Jonas Salk: It's clear that - it's good that we have papers to go back to so that history can be corrected and not be rewritten. It's very recent that we can say I am not head of the Institute, I was at the beginning, and I should like to tell you a little bit about Leo and myself in relation to La Jolla because this is one of the bits of history that I suppose is known only to a few and one of them is right here, and he is Roger Revelle. But Leo is aware of my stirrings in the late 50s and my interest in creating something different from the academic institutions that were - existed - at the time. An attempt to bring about integration both within biology and between biology and you might say the human sciences. And Leo's interest, as you all know, a very broad, albeit extraordinary, human being as well as an extraordinary scientist whose interests ranged from physics to biology and beyond.

6:51 Jonas Salk: It was - in May of 1959 that I arrived at my hotel in Rome, on my way back from Israel, after a trip to Europe, and I found a telegram asking if I was still interested in the kind of an institute in which he was aware, and would I be interested in an invitation to come to La Jolla to see if this would be a good place in which it might be established. And so, Leo was always doing things like that. As all of you well know, he probably brought more people together than almost any other person. In recent times, he was a, a confirmed matchmaker in that sense. And upon my return, I think it was in June, Roger Revelle and I talked on the phone, for the first time, and I came here at the end of August 1959 with the express purpose of saying 'well I've been here and thanks very much, but I had other ideas. But, I must say that there was something very compelling and appealing about my contact with Roger and the others here and the rest of the rest of the story is known to all of you. Now Leo, at that time, was all over the place, but it seemed to me that he belonged here. It was his idea that perhaps this is a good place and it was with great pleasure and satisfaction that it was possible for him to be not only a non-resident fellow in the original group but even before the Institute became established to become one of the resident fellows, one of the resident faculty. And, it was the greatest tragedy for me personally for him to have been snatched away so soon because of the spirit that we shared, the vision, and I wish that he had been able to have seen for himself. But, it's important to know that my being here, and Leo having been here, on the faculty so to speak of the Salk Institute, it is a direct attribution to Roger Revelle's creative energies, and spirit, and vision in having made this possible. So, it seems to me that as we celebrate Leo's becoming what I like to think of as a member of the posthumous faculty, a member of faculty with tenure here, that we will have the opportunity to bathe in his wisdom and to see attracted here others like him and that this will become a living memorial and a living institution which we would very much have liked to have had at the Institute and I'm delighted that it's

possible for the acquisition to have been made by UCSD, because this is really one community which is indivisible. I'm delighted to have this opportunity to acknowledge both my friendship and relationship with Leo and his participation in my being here, and particularly that of Roger as well. Thank you very much. [Audience claps]

10:44 Allen Greb: Next we'll here from Bart Bernstein, but before I do that I was somewhat remiss in not introducing - well this is great we're having more people coming in [laughs] - I was somewhat remiss in not introducing a couple of the members of the audience, one, a close colleague of mine, Helen Hawkins, who worked very closely with Leo's wife, Trudie Szilard, there she is in the back [audience turns around and claps], and helping to edit many of the Szilard Papers, and we have in turn collaborated on the editing of a final volume of the Szilard Papers that will hopefully be appearing in the y- in- within the next year. Also, in the audience, is Bill Lanouette who is a biographer of Leo Szilard, working directly with Béla Szilard and his published work will appear and will be put out by MacMillan in approximately 198- late 1987 or early 1988. Bill would you stand up? There's Bill. [audience claps]. Okay, now Bart Bernstein will attempt to put Leo Szilard in some type of historical perspective.

12:18 Bart Bernstein: I must say that I do a lot of talking around the country, this is one of the few occasions when I felt in advanced, intimidated. And, as impressive as the audience is, the source of intimidation is not you, but Leo Szilard. For I find that the more I think about him, the more he remains in certain ways enigmatic, in his own peculiar way, that's one of those adjectives one could use so easily, indeed perhaps promiscuously, about him. He remains both distant and close. For those of you that know him, or knew him, realize that he was a man of relentless energy. Indeed as I was thinking about to entitle today's talk, I was tempted to call it 'the exuberant uses of cerebration,' it seemed to me that got well at least at much about him. He was a man such that after the War, and after Hiroshima and Nagasaki, one distinguished Nobel Laureate had said that if the project could have been run on ideas alone, no one but Leo Szilard would have been needed; a restless, creative physicist, he'd foreseen as early as 1933 the likelihood of producing a nuclear chain reaction and atomic explosives and took out a patent with the British Admiralty in order to keep the information, or idea, secret, especially to Germans. One of the pioneer scientists on the Manhattan Project, he was a dazzling intellectual presence there and in his generation, among such luminaries as Oppenheimer, Vignor, Teller, Hans Bethe, Robbie and Earnest Lawrence. But more than any of the other men of his generation, most of whom among the luminaries are better known today to scientists qua scientists, it was Leo Szilard who bubbled forth, one might say tenaciously, exuberantly, with scientific and political ideas. And unlike the others, he delighted in challenging authority, and especially during World War II, in bating the military. In particular, his *bête noire* General Leslie Groves, the commanding general of the Manhattan Project, who reciprocated with venom and vengeance. He was a man, Szilard, who could be impish, abrasive, zealous, relentless. Within his first eight

years in America, he'd drafted the famous letter that Einstein sent to FDR, which in a sense, initiated the Manhattan Project. He lobbied with the government to try to get it to move more energetically in pursuit of atomic weapons. He urged physicists in 1939 to impose their own moratorium on publication in certain key areas of atomic physics. He organized scientists in 1945 to oppose military control of atomic energy. He sought prior to that to avoid first a demonstration of the A-bomb at Alamogordo and then its use against Japan. He pushed energetically to approach the Soviets before Hiroshima and Nagasaki, and in his later years, he crusaded for arms control and disarmament in an ever changing amalgam. He inspired the formulation and movement toward the Pugwash Conferences. He conceived and promoted the idea of the hot line. He created and spiritually guided the Council for a Livable World, and through it all, he remained persistently a foe of the arms race, a believer fiercely in rationality and a believer that science, and scientists in particular, could guide us out of the impasse into a better world.

16:51 Bart Bernstein: Characteristically, in 1960, felled by cancer, he retreated to a hospital room, designed his own radiation treatment, declared that the physician attending him was a consultant, affirmed that he, Leo Szilard, was indeed the prime initiator of the medical treatment. And, during the course of the time, where he seemed to be torn between depression and exuberance, between holding court and suppressing the real fears of imminent death. He wrote *The Voice of the Dolphins* and also dictated his reminiscences. One might, the risk of misusing the adverb somewhat, say miraculously recovered, or so it appeared from cancer, he dashed on a plane to a Pugwash Conference abroad. Characteristically, reminisces, he said that he once told Hans Bethe that he was going to write down all that was happening, referring to the Manhattan Project years, he said "I am going to write down the facts, not for anyone to read, just for God." And Bethe said, or at least apocryphally allegedly said, "don't you think God knows the facts?" And Szilard says, "but not this version of the facts," [audience laughs].

18:22 Bart Bernstein: Upon his death, Leo Szilard as happens, it will happen to all of us, became the subject of analysis and more scrutiny and one of his old friends remarked, with a certain kind of playfulness subtly designed to imitate Szilard himself, he said of all Hungarians, Leo Szilard was the most Hungarian. In case there should be anyone who doesn't know the absurd connotation of the adjective, I might cite one of the current definitions, "a Hungarian is one who enters a revolving door behind you, and comes out in front of you" [audience laughs]. That source, and I think it tells us much about the man, was Edward Teller. For while Teller and Szilard remained political enemies, it was an enmity conceived in the spirit of affection, where each agreed, and could only disagree, on matters politic, but each retained sincerely, until Szilard's last days, and Teller still speaks of him affectionately, a sincere liking to the other. That each brought a certain level of passion and dispassion, in a curious amalgam. There was about Szilard, and I think he himself put his finger on it nicely in his reminiscences, when he said [open up

Szilard's book], "for as far as I can see I was born a scientist. I believe that many children are born with an inquisitive mind, a mind of a scientist, and I assume that I became a scientist because in some ways I remained a child," [closes book]. In his public writings, and even his correspondence here at the library, he was for the most part, remarkably impersonal. And yet, occasionally, in *The Reminiscences*, and in letters, there will be these dashes of insight. Although one is always puzzled, and I certainly am, to try to figure out whether it's an insight I perceived, that he too perceived, or whether it's an insight he provided that he chose periodically not to recognize. I think it's appropriate that the Szilard Papers should be here at UCSD. For it was here that that restless and peripatetic man, so exuberant, so believing in cerebration ultimately, but unfortunately, only so briefly, found a home at the Salk Institute and that his papers should be here, housed in the library, with Harold Urey's, as part of a growing collection in the University known already for its distinguished science, nationally and internationally, and for its scholars; Herbert York, so concerned about science policy, arms control in particular, and participation in it. As well as, Roger Revelle, who I'm sure needs no introduction or characterization. Chancellor Atkinson, who I gather, is not here yet, but himself has been involved in both making policy and in looking at it.

21:50 Bart Bernstein: I first met Leo Szilard in 1961, in November of the year, when I was a graduate student at Harvard University, and I heard from some roommates in physics and chemistry that Leo Szilard was going to be talking. It was at the Harvard Law School Forum and I believe the date was November 17th, 1961. A little after the Berlin Wall and almost a year before the Cuban Missile Crisis. We went that evening, and there was a man, well attired and ruffled, looking as if the clothes had been somehow ill-fit on him. Feeling more than a bit uncomfortable, with a large body, which is quite inappropriate these days to California shapes, speaking in a heavy German accent, and calling for an end to the arms race, some control over it, the creation of a lobby, which would provide some kind of funding to try to constrain the arms race. The time, leaning against the wall over on the left side of the room as I recall, was a still young, rather well known biologist of Nobel fame then, or assumed to be, who obviously both liked Szilard, and yet was keeping his distance, both physically and in ways intellectual or ideological and afterward he explained, to a mutual friend of ours, that he didn't want to get too close to these ideas because he hoped to be the President's science advisor someday, and such an association with Szilard's notion of lobbies and criticisms of the arms race could get him into trouble. James D. Watson.

23:58 Bart Bernstein: I mention it because I want you to get some sense, as you think back on Szilard's ideas in the early sixties, that now they represent a set of themes, in variation, which are part of the larger political dialogue. In one sense, that I may squash the ideas a bit or flatten them out, one can see the freeze movement of a few years ago has something roughly empathetic and close to what we see, in a cousinly way, to Szilard's ideas in the early sixties. Yet, at the time there are those

who wanted to be very respectable, who feared the taint of public association. And yet, and this is part of, if not the enigma, at least the modest puzzle, of Szilard, that one, on the one hand, some people were afraid of the association, but if one works through the correspondence, what's striking is it's correspondence mostly with the respectable and the near-respectables. It is not a correspondence with a marginal people, it is not a correspondence with people on the political fringe. It is a correspondence with Not simply Khrushchev, and Stalin, and John F. Kennedy, and Carl Kaysen, but Jerry Wiesner, and Harvey Brooks, and Paul Doty. If you think back to the political climate between the late forties and the early 1960s, think of the kinds of names that don't appear and they also tell you something about Szilard's politics, I think. And that is, A. J. Muste, I.F. Stone, Paul Sweezy, C. Wright Mills, William Appleman Williams, they don't appear. That Szilard, to repeat, was a man who operated close to the contours of respectability, seeking to influence the channels, staying far away, I think by ideological commitment, and maybe a sense of efficacy, from those thoughts, or notions, which would've been deemed in those years, radical, unrespectable, and marginal.

26:27 Bart Bernstein: But, I remember in 1961, when Szilard was at Harvard, somebody asking him privately after his talk about the recent sit-ins, in the South, and the Northern area in response. And his surprise and dismay that people would have taken politics into the streets, that he was very clear and indeed wanting to get some sense of his notion of how politics should operate, that he believed that the best way to change the world was through scientists, ideally, if not guided, inspired by him to recognize the truth, to advise policy makers to astrew their emotions to work out the inefficiencies of an international system. Where on the one hand he saw that potentiality of imminent cataclysm, on the other hand he often felt that negotiations could do much to resolve problems. There was a remarkable optimism in him. His foes, I think retrospectively, might say also, some naivete. And, I think that his own answer, suggested by the correspondence and some of his statements would've been, yes that there was a childlike quality. That very childlike quality allowed him to say what others often would not utter, allowed him to pursue and hope for what others would not seek, and allowed him to be optimistic when many were either pessimistic or alternatively, unaware.

28:16 Bart Berstein: There was I think, related to that, another set of themes so important. And that is, a fierce rationality, a profound belief in the capacity of individuals to do right and to overcome passion. A profound mistrust of passion, of emotion, and I think even often in his own life, connectedness. It was, I think, when he was 16, that he remarks in *The Reminiscences*, that he vowed to avoid the dangers of emotional connectedness in order to do the kind of work he wanted to do. That for him, resolving problems was a matter of overriding emotions, denying emotions, and urging others in the body politic to avoid emotions. Interestingly, it was Einstein, who as early as 1930, in talking about Szilard, said, "He is a genuinely intelligent man, not generally inclined to fall for illusions, perhaps like many such people, he tends to

overestimate the role of rational thought in human life.” Perhaps, perhaps he did. We think of him, among his other accomplishments, as one of the many fathers of the Manhattan Project. And of course, reluctantly, one of the enemies of the results of the Manhattan Project. In 1939, with the recognition and discovery of fission, Leo Szilard, in what I believe was an unparalleled effort, up to that time in modern Western science, sought to organize scientists on behalf of decency, humanity, and anti-Nazi sentiment, to withhold from publication material that might aid a likely adversary in a possible arms race. It was a moratorium which speedily came unstuck. It was a moratorium which in other form would be imposed by the government soon and called censorship. It is one of the typical ironies of Szilard, that having at the time imposed a moratorium that came unstuck, he would in later years be one of the chief foes of governmental censorship. Most of you know the story of Szilard, accompanied on that occasion by Edward Teller, because Teller could drive and Szilard could not, journeying out on Long Island to get Einstein to sign the famous letter which led him directly to the Manhattan Project. [Coughs]. [Image of letter shows on screen]. And, it is in part that letter that has led so many to see Szilard, I think, properly, as one of the fathers, of the many fathers, of the bomb. [Image of Szilard shows on screen]. But, it’s also worth remembering when we try to look back at history and ask ‘do men, or do people make a difference and at what critical juncture do they?’

31:52 [letter is panned over, bottom of the letter shows “Yours very truly, Albert Einstein”].

31:55 Bart Berstein: There is a danger in overemphasizing that role, dramatic as it was, in his case. [video of Albert Einstein is shown]. But, what really made a difference in the American project, was not the letter of ‘39, which I think others might have written in different form, then or about a bit later, but rather instead, that two scientists in Britain soon ran some critical calculations on the cross section of uranium. That suggested the project was doable with a reasonable amount of material, in a reasonable amount of time. Without that second act, there probably would’ve been no Alamogordo, Hiroshima, Nagasaki. And, to repeat, while we emphasize Szilard’s letter in ‘39, it was characteristic of the man, that it was he who inspired that direction. I think that there are many others waiting in the wings, who in the next year would’ve done something similar, moving the government, in roughly, the same direction. On the project, especially in Chicago, Szilard was to many of the associates, a galvanizing, inspiring presence. Violating all the Army imposed rules of secrecy, which practiced or demanded compartmentalization and a conception of need-to-know, which meant, if someone was doing something not precisely in your bailiwick, to maintain security, you shouldn’t know about it. [Image of Szilard shows]. Szilard, like many others in Chicago, violated the rules. Szilard like - unlike many others, admitted openly that he violated the rules, and periodically provided statements of such violation. There was a quality about him of liking to challenge authority, being somewhere between capricious and more severe. He loved to twit General Groves of the Army establishment. He was at least, at minimum, in Arthur



Holly Compton's mind, the director of the project, a nuisance. Compton in '42 or early '43, on one occasion, arranged to try to transfer Szilard, and realized that there'd be so much resentment among his colleagues in Chicago that Compton backed away.

34:14 Bart Berstein: On another occasion, and this I think is somewhere between little known and unknown, General Groves, on October 28th, 1942, drafted an order for the imprisonment of Leo Szilard. It reads, "the United States will be forced to dispense with the services -- of the services of Leo Szilard. It is considered essential to the prosecution of the War that Mr. Szilard, who is an enemy alien, is interned for the duration." In fact, Groves, after the War, in an interview, said that he'd gone to Secretary of War, Henry L. Stimson, with the problem and Stimson explained that it was impossible to sanction this kind of legal illegal behavior. Then Groves, with a kind of flash of ingenuity, characteristic almost of Leo Szilard, hit upon the nifty notion that Groves would arrange to go to James Conant, the President of Harvard and at the time also a chief advisor on matters scientific for the President and a director of one of the chief Washington agencies, and arranged for Conant to have Harvard buy Leo Szilard [audience laughs]. According to Groves, who may not be the most trustworthy source on such matters, Conant said, with raucous laughter, that he would have no part with such a deal. How much of that meant that Harvard could not withstand Leo Szilard and how much of it was Conant's own apoplexy about dealing with Groves is unclear. During the War years, especially '41, '42, '43, Szilard was constantly worried that America might be losing the race, with Germany, for the atomic weapon. He kept urging reorganizations, more exchange, more direct ways of pursuing the weapon. Periodically, he filed complaints with Compton, and in Washington with Vannevar Bush and James Conant. We have some of his correspondence and we also have the uneasy responses by Bush and Conant, and to summarize unduly, their own messages back to one another, what they were saying is this man is a nuisance, he is trying to make a record, let's try not to see him if we can possibly do so, but I guess we must.

37:00 Bart Berstein: At one point during the War, through the directives of the army, Groves was - uh I'm sorry - Szilard was subject to what was called in the jargon, a mail cover, for those of you who don't know recondite lexicons, what it meant was the post office was opening, or having the Army or FBI open his mail. In characteristic fashion, one of the new post men on the beat made a mistake and passed on the message about the little slips of paper to Szilard. The Army was terribly distressed and continued opening his mail, and presumably also periodically bugging his phone. The Army also, when Szilard left Chicago for other places during the war, usually tailed him and filed reports with General Groves or subordinates, upon what Szilard was doing. Having joined the A-bomb project, having in part initiated it, in a race, which is regarded as a deadly race against Germany, Szilard came to realize before the war ended that the race was going to be won by the United States. That Germany was not going to get the bomb and Germany would,

undoubtedly soon, surrender. Szilard, with that characteristic energy, imagination, and delight in violating channels, to go through channels, arranged to write to Einstein, to ask Einstein to write to Eleanor Roosevelt, to ask Eleanor Roosevelt to approach her husband, so that Szilard could plead the case against the use of the weapon and for a direct approach to the Soviets in order to avoid a post-war arms race. Szilard failed in a triple sense in that venture, FDR died, had FDR not died, history would have been on those matters I think identical. For Truman was to follow, not to initiate policies on these matters.

39:16 Bart Berstein: Szilard arranged through a scientist at the Chicago Project who knew a Kansas City politician, who knew of course that Truman hailed from Kansas City, to arrange for some kind of deal where Szilard would approach the White House. A letter was sent and the appointment secretary to the President would arrange that Szilard would go to see James Byrnes. At the time, secretly, the Secretary of State designate, not yet known to Szilard and others. They met, at Orangeburg-Spartanburg, South Carolina, in late May of 1945. Szilard outlined his concerns; the bomb should not be used because it was a terrible weapon and had been conceived in a race against Germany and now was unnecessary, and as important, perhaps even more important, the Soviet Union should be approached early on the matter less the Soviets be pushed into a post-war arms race and the imminent peace ruined. It was a conversation between a German accented, Jewish physicist, who delighted in understanding authority, and yet did not, and a wily, shrewd, South Carolina politician whose concern was not sharing the bomb, but keeping it secret. Whose concern was not avoiding its use, but using it as speedily as available. There could not have been any meetings of minds. Different values, different ideologies, different temperaments, different backgrounds, different purposes, different notions of the post-war world and a different faith in the capacity of American power to influence if not shape it. And Szilard in his characteristic fashion, I read this for those of you who did not know him well, He said "I was rarely as depressed as when we left Byrnes' house and walked toward the station. I thought to myself how much better off the world might have been had I been born in America and become influential in American politics, and had Byrnes been born in Hungary and studied physics. In all probability, there would have been no A-bomb and no danger of an arms race between America and Russia," [audience laughs].

41:54 Bart Bernstein: Despairing of working that way through channels, seeking to get to the top immediately, to influence policy, Szilard hit upon another set of notions, or to use a term in an un-invidious way: schemes. He decided that scientists at Chicago, at the Met Lab, which was roughly finished with its wartime work, should write and submit petitions, urging the government not to use the weapon and furthermore to approach the Soviet Union. Indeed, Szilard was a guiding genius, a spiritual architect behind the famous Front Petition. The petition failed. Some scientists continue to this day, men of that generation, to believe it failed because it never reached the President. It failed not because it never reached the President, it failed

because it was offering council that was not desired. Had the petition reached Harry S. Truman, it would have ended up in the dustbin of history. It did not reach Harry S. Truman and he did precisely as he had desired to do, and would have done regardless of any petition that might have been circulated by any group of scientists. For in part, what distinguished some policy makers from scientists, and most significantly Leo Szilard at the time, was that policy makers viewed scientists as a servant of power. And some, like Szilard, viewed scientists as the makers, or the would be and should be makers, of policy. On that, there was a fundamental dispute, and it came out most sharply in the summer of 1945 when Leo Szilard sent one of the many petitions to his old friend, fellow Hungarian emigree and physicist, Edward Teller, at Los Alamos. Teller contends in his memoir that he took the petition to Oppenheimer and discussed it. And Oppenheimer said that scientists had no special responsibility, nor right, to operate on these matters. That they were simply members of a democratic polity and should yield to elected and appointed leaders.

44:18 Bart Bernstein: Szilard was arguing that scientists qua scientists had a unique responsibility and also had in their possession, a more clear conception of the truth. Ironically, if we can believe Teller's recollection of the conversation, then most of us may well rue Hiroshima and Nagasaki. In that version, and in Leo Szilard's life, he was indeed, at least on that occasion, far more elitist than J. Robert Oppenheimer. And on that particular occasion, though perhaps restricted to that particular occasion, more elitist than Edward Teller, who wrote back and said among other things, combat use might even be the best thing for then the people would know. After the war, most of the scientists involved in the Manhattan Project received RES certificates of merit: accolades for their achievements. Only one noted scientist on the Manhattan Project failed to so receive such a certificate: Leo Szilard. Why? The answer is that General Leslie Groves vetoed the certificate of merit on the grounds that Szilard was untrustworthy, maybe even disloyal, and had been a persistent nuisance. And speedily also arranged to terminate Leo Szilard's employment at the Manhattan Project, but counted on the then director of the Chicago laboratory, Farrington Daniels, to do so in such a way that it would not be clear that it was the Army's decision. As Groves put it in a memo, which I'm paraphrasing, Daniels can be trusted to handle these things discreetly.

46:27 Bart Bernstein: In the post war years, Leo Szilard was to galvanize, be a leader in the quest to block the efforts by the military to control atomic energy. Triumphant as he did with his fellows legislatively, we could at least ask the question: has it in retrospect made any difference? So believing as many of the scientists did of that generation, in constituted forms, in seeing the military as particular enemies, or vigorous likely users of atomic weapons, it's at least an interesting question to speculate. Whether it has made any difference, whether the McMahon Act passed rather than the May-Johnson Bill, I would suggest, not something I wanted to pursue today, but suggest, it may not have made an appreciable difference over the years, powerful as it seemed at the time. He also sought to lead a crusade for disarmament

and then for arms control. A crusade in which he enlisted great energies, massive intelligence, persistent ingenuity, and more than occasional naiveté. A crusade in which he was relentless, his enemies would say a zealot. Some like Teller and Vignor who admired him as an individual, but reviled his politics, they would contended that he was naive and sometimes even that he was selling out America's welfare for the myth of some kind of Soviet-American agreement.

48:18 Bart Bernstein: He was a man who through much of his life, deterred from his political ideas to personality, who managed to remain largely homeless, who lived for many of his years at the Chicago faculty club. And I understand, from Trudie Szilard and others, that he would check out, to save the money each time he was going on a trip, check back in, and in the interim, put his various materials in storage. In fact, one of the reasons, for those of you who have looked at the papers, they have these curious designations such as "brown zipper bag from Mount Vernon," or "bag, green bag from the basement of so-and-so." It's not the way most people keep their papers, normally they're in file cabinets or boxes in the office. Probably what happened is that whenever he went on a trip, and frequently when he visited people, he left at the end whatever papers he had. Trudie used to tell that story that for years after Leo died, people would call and write and send her little collections of papers. One of the reasons in fact they're as disorganized as they are at present to make it so hard for Bill, Jean Jansin, myself and others to work through them precisely that there's an arrangement which is a curious product of the history of a set of events which is very hard for us to fathom, let alone distill. One of the other themes that appears in the papers which may surprise you is an oscillating, but often strong concern about money and a guaranteed income. And so frequently he was working on notions to earn more and to guarantee the kind of income where he would be free simply to cerebrate. I gather it was not until his last years that he may have been - that he was really successful in working out some kind of a relationship.

50:27 Bart Bernstein: The papers also have another quality that I think tells us something about the man; they are largely impersonal and in addition the papers are almost entirely copies of what he wrote, not copies of what people sent to him. There is, I think, linked to the larger political purpose, and not unique to him, a kind of - if you will - a kind of self-absorption of suggesting that his own work and writings were for the most part more important. During the years at Chicago, when he was a professor of biophysics, and during a part of the period also a prof- a professor in the social sciences, he did not teach, he did research in various areas and he was generally peripatetic. In fact, there's one nifty document from about the mid 1950s from somebody in Chicago administration which said, and I'm paraphrasing loosely, you have all these wonderful ideas and you gro- go all over to tell people things, why don't you stay here and tell us? I wanted to share with you one anecdote about Leo Szilard, which has a political significance, before closing. This was told to me by his wife Trudie some years ago. On the eve of Edward Teller's testimony in the Oppenheimer hearings, where Teller, as most of you probably know, it seemed to

tell us, so deftly skewered Oppenheimer, by suggesting that he was a security risk without overtly asserting it. Leo Szilard had known in advance that Teller would undoubtedly do that. And the night before in Washington, according to Trudie, was seeking to find Teller to talk to him, to persuade him not to do so. For Szilard feared that not only that would such testimony would ruin Teller, in the scientific community - which was partly true, but also that Szilard feared that he would have to spend much of the rest of his life defending J. Robert Oppenheimer and he didn't like him, he didn't trust him, he did not think he was a loyalty or security risk and he preferred not to defend him. Szilard always believed that had he reached Teller he could have persuaded Teller. There I think we have an example of the decency, the compassion, the naiveté, the minimization of themes of passion, in this particular case hatred, and also the persistent belief in the efficacy of reason and his own efficacy. As Teller and others used to call him; the General, because he was so willing to order and direct others to what he hoped to be a larger common purpose.

53:44 Bart Bernstein: His intellectual legacy in the field of arms control and disarmament is both profound, pervasive, and yet curiously hard at this distance to pin down neatly. Beyond the specific details of proposals that he promulgated and urged, his constant emphasis upon negotiations, the constant theme of a sense of danger, the frequent call for cut-backs in the arms race, the willingness periodically to recognize that disarmament was imminently impossible, and therefore that arms control could be the road. The call for trusting the Soviets, for attempting various forms of verification, and hitting upon new schemes for arrangements. But, beyond that he was a man of great compassion, of humanity, of decency, of vision, of energy, and always of rationality seeking to urge others to do as he would do. Characteristically, as some of you know, he lived by his ten commandments. Devised, characteristically, by himself, and having only a marginal relationship to the decalogue handed down elsewhere. "Do not destroy what you cannot create, do not covet what you cannot have, do not lie without need," [audience laughs]. There I think one gets some of the sensibility, the honesty, and also the puckish charm, "do not lie without need."

55:35 Bart Bernstein: I want to share with you in closing a few "Szilard-isms" as one author put it. On the issue of democracy and education he said, "I'm all in favor of the democratic principle that one idiot is as good as one genius, but I draw the line when someone takes the next step and concludes that two idiots are better than one genius." [audience laughs]. Or, on the space race, "I have mixed feelings about our spending 20 billion to get to the moon first, but if we are caught in the conflict of prestige with the Russians I'd rather have it centered around the moon than Laos, Cuba, or Berlin." Or on credit and fame in intellectual matters, "in life you must often choose between getting a job done or getting credit for it. In science, the important thing is not the ideas you have, but the decision which ones you choose to pursue. If you have an idea and are not going to do anything with it, why spoil someone else's fun by publishing it?" [audience laughs] And last, on matters nuclear, so central to him in the last 30 years of his life, "it is not necessary to succeed in order to

persevere. As long as there's a margin of hope however narrow, we have no choice but to base all our actions on that margin. America and Russia have one interest in common, which may override all their other interests to be able to live with the bomb without getting into an all out war that neither of them wants." It's partly a testament to Leo Szilard. In believing that to be the case he dedicated much of his life to the very pursuit of avoiding the holocaust that he thought might occur. Thank you. [audience claps].

57:39 Egon Weiss: Listening to Doctor Bernstein's subject of Leo's ubiquity, he lived all over the world as you well know, mostly in hotel lobbies and remember the King's Crown Hotel in New York. And I would be remiss if I were not - if I were not to pay tribute to my sister, Trudie, [video plays of Trudie with the papers] who did a Herculean job in assembling all these materials from all over the world; from my sister, Francisca's [audience claps] basement, from various attics and it was a truly remarkable job. And Trudie labored very hard, since Leo died in '64 until her own death in '81. For 17 years, she worked a good bit of her time in the UCSD Library due to marvelous librarians who, I'd like to have Mr. Mell Voigt stand up, the librarian emeritus who accorded her [audience claps] not only sympathy, but space. And to all who know Trudie, knew she could be quite difficult at times and demanding, but he did it marvelously. And then, of course, his successor, Millicent Abel, who unfortunately can't be here to recently work - became university librarian at Yale, followed in his shoes. I'd be remiss if I were not to mention Dr. Herbert York, who was a tower of strength in encouraging Trudie to publish - publish and bring out *The Reminiscences*. Trudie did so, the first two volumes, and she was engaged in a third volume when she passed on. Now again, Helen Hawkins, and Allen Grebb have carried on with the task of being the co-editors and I'd like to express my appreciation, and my family's appreciation to them for doing such a wonderful job and Dr. Bernstein also, who's in the process of finalizing the introduction to the third volume which hopefully will appear within a year.

1:00:03 Egon Weiss: I would also like to express my appreciation at this point to Lynda Claassen, who's the Special Collections librarian- Mandeville Collections, Special Collections, who has been most encouraging and a wonderful person to work with and I know that the Special Collections librarians can be difficult at times. I'm a librarian myself, but she's anything but that and she's very sympathetic to, and very wonderful, not only to us, but to any researchers whom she accords the widest amount of latitude. And last, but not least, again my appreciation goes out to the Friends of the UCSD Library who are very, very responsive and were able to work out the - negotiate - the placement of the papers to the University. This was Trudie's fondest dream; she loved La Jolla, she took her some time to put her feet on the ground here but she became to love it and she became an inextricably interwoven with the intellectual life at the University and I think she was not just Leo's wife, she was his physician, doc, the preceptor and carried on as best as she could. And I think we owe her and everybody connected with her a great deal of that. At this

moment I'd like to thank everybody who showed up today for this very, very memorable event. We do appreciate your coming here and sharing with us these reminiscences and I understand that will be joining all of you at the Library where the exhibits have been placed, is that right?. Thank you. [Audience claps].

- 1:01:55 [Camera pans over exhibit case of the Leo Szilard Papers]
- 1:02:08 Speaker: 10, 9, 8, 7
- 1:02:11 [Video shows audience mingling and getting up out of their seats, music is playing]
- 1:03:05 [LEO SZILARD DEDICATION RECEPTION U.C. San Diego Library March 22, 1985]
- 1:03:14 Egon Weiss: At the present time, Mr. Bill Lanouette is talking to Dr. Ephraim Riker [sp?] with regard to obtaining some anecdotal material and they're making arrangements [points microphone at] tell the story right now.
- 1:03:32 Ephraim Riker [sp?]: Well one story is that, okay, that in 1960 I came back from Basel, I bought myself a new watch and Leo must have been at our house and I showed him the watch, everything was new and shockproof and waterproof and so on, and Leo muttered "it's a nice watch, but I like mine better." He pulled out an old German watch which had two metal covers on top of it and if you want to watch to look at the time you would put it out and you would see the time.
- 1:04:09 Speaker 2: Right, right.
- 1:04:10 Ephraim Riker [sp?]: And that procedure always at the same time would wind the clock.
- 1:04:15 Bill Lanouette: Uh huh.
- 1:04:16 Ephraim Riker [sp?]: And I said to Leo, "it's very nice but I am surprised every time you have to look at the time you have to do work." He said, "yes, but this is where I get my exercise." [Laughter].
- 1:04:29 Egon Weiss: Okay, you have another one?
- 1:04:30 Speaker 3: Ya, I'll tell a story too. We spent a number of summers in Cold Spring Harbor, where Leo was really introduced to the field of biology. And took a course on phage and genetics. He - everybody ran around with bathing trunks, it's very hot it's on the North shore of Long Island, and Leo was always fully dressed with a three-piece seersucker suit and I said "Leo why don't you get - you know everybody else runs around with bathing suits and you are fully dressed." He says, "oh, I'm much cooler than anybody else." I said, "Leo how do you figure that?" He said, "well by being dressed I'm sweating, and sweating takes away the heat, you know, and this way I'm cooler than anybody else." [Laughter]

- 1:05:20 Speaker 4: You tell a story now.
- 1:05:22 Egon Weiss: Well this story [laughs] I can't tell this story, how about his eating habits, huh?
- 1:05:29 Bill Lanouette: Yes, they're legendary aren't they?
- 1:05:31 Speaker 3: Or the one with the eggs [Cross talk]
- 1:05:31 Speaker 5: Okay, nice meeting you [shakes hands with Bill Lanouette]
- 1:05:32 Speaker 3: The one with the eggs, he -- he -- he ordered in lieu of his -- of the full menu that people got, you know, in the mess hall. He would order 4 hard-boiled eggs for every meal because he thought that way he would lose weight and then he would eat the four hard boiled eggs and then the full meal after that.
- 1:05:53 Bill Lanouette: And the full meal?
- 1:05:54 Speaker 3: Ya.
- 1:05:55 Speaker 6: Helen, you worked with Trudie for many years and I was wondering if there's any favorite stories you have of Trudie - or that Trudie told about Leo?
- 1:06:01 Helen Hawkins: The main thing I think that stands out for me in my association with Trudie was that she was such an important person in making sure that Leo's work was saved. I mean, if it hadn't been for the years of energy and dedication that Trudie put in, many of his ideas would've been available only to those who were esoterically informed, who could dig it out of libraries and would know it was there. And Trudie really spent so much of her own life energy in making sure that his work was recognized for its value and preserved. That she really deserves a tremendous amount of credit for any of this having happened. So that's mine- my main remembrance.
- 1:06:47 Speaker 6: Thank you very much [nods and smiles].
- 1:06:50 [music and visuals]
- 1:07:54 [Japanese characters appear on screen]
- 1:08:29 [LEO SZILARD]
- 1:08:36 [THE MAN BEHIND THE BOMB]
- 1:08:42 [A POSTSCRIPT with]
- 1:08:46 [GERTRUD WEISS SZILARD]



- 1:08:55 Helen Hawkins: Doctor Leo Szilard was a brilliant scientist who played a leading role in the development of the atomic bomb. But, who also tried to prevent its use against Japan in 1945 and who became a leading advocate of nuclear arms control. When Japanese public television made a documentary program about Leo Szilard, that became part of the 1980 PBS series television from Japan, the program was titled "The Man Behind the Bomb." I'm Helen Hawkins and with me now to tell us more about the man behind the bomb is Leo Szilard's widow, Dr. Gertrude Weiss Szilard; a medical doctor who is associated with the program in science, technology, and public affairs at the University of California at San Diego. Dr. Szilard, how did Japanese public television come to make this documentary about your husband?
- 1:09:47 Gertrud Weiss Szilard: Well it came quite as a surprise to me.
- 1:09:50 [Dr. Gertrud W. Szilard]
- 1:09:50 Gertrud Weiss Szilard: They contact me first in the Spring of 1977 and Mr. Yasumo [sp?], one of the producers -- the producer of this particular program appeared on the scene and seemed to be extremely knowledgeable about Szilard. And this surprised me and I was wondering about this and I said "well how do you know so much about Szilard?" and he said "well, *Reminiscences*," and this was -- *Reminiscences* was the title of a chapter in a book which was printed by the Harvard University Press in 1968 and which brought Szilard's tape recorded interviews, which he did during a period of illness in 1960 in New York. And, apparently this was translated in Japanese, and the Japanese - Mr. Yasumo[sp?] before -- before he came to see me did his homework. He not only read *The Reminiscences*, but he already, also read volume one of the *Collected Works of Leo Szilard's Scientific Papers* and he had some background in physics and he was extremely knowledgeable about it and very enthusiastic about doing a film about Szilard who seemed to be one of the heroes of the Japanese. I assume, they never quite said it, but I assume because Szilard did not want the bomb to be dropped on Hiroshima.
- 1:11:19 Helen Hawkins: Now, in your recent publication, a book that is a more complete version of *The Reminiscences*...
- 1:11:23 [Helen Hawkins KPBS TV]
- 1:11:26 Helen Hawkins: that has with is also the appropriate documents, you titled that book *Leo Szilard: His Version of the Facts*, his collected works, his version of the facts. Why was that?
- 1:11:37 Gertrud Weiss Szilard: Well, we chose this title, this goes back to a conversation which Leo Szilard had and recorded during the Manhattan Project, that was the project which was concerned with the production of the atomic bomb, he did not agree with many of the regulations in the project and was quite unhappy part of the

time. Because he didn't want -- he couldn't work exactly the way he wanted to work and he things should go -- things should go. And one day, Bethe visited him.

1:12:13 Helen Hawkins: Bethe is?

1:12:14 Gertrud Weiss Szilard: Bethe is, who is now a professor of physics at Cornell, Emeritus, but who also was very much involved in the project and my husband - they talked about all the difficulties and my husband said, "things are so peculiar that I think I would like to keep a diary, not for publication, or to inform anybody of this, but just for the information of God," and Bethe said "well don't you think that God knows the facts?" and Szilard said, "maybe so, maybe so. But, not this version of the facts," and so I thought it was appropriate to name the second volume of the collected works which gives the extended tapes plus the documents Leo Szilard's from -- Szilard's point of view to call it, this version of the facts.

1:13:08 Helen Hawkins: Now, a key element in the story of the development of the atomic bomb is the letter that Einstein wrote - sent to Roosevelt in 1939. Was the Japanese version in the documentary they made of that story accurate?

1:13:22 Gertrud Weiss Szilard: Well, it was accurate but quite abbreviated. The story is a little more complicated. What happened was that the Germans, in 1939, were about to overrun Belgium and Szilard became very much concerned that they would get ahold of the uranium in the Belgium Congo and so he thought one has to warn the Belgians about this, you know? And, well how to do this? So he and Vignor had big discussions, and they knew that Einstein knew the Queen of the Belgians.

1:13:57 [Dr. Gertrud W. Szilard]

1:13:57 Gertrud Weiss Szilard: With whom he played music, Einstein was a violinist as you know, and the Queen of Belgium was too and they had played chamber music together and he knew the Queen quite well. So, Szilard and Vignor went to see Einstein, who at that time was on vacation in -- in a small place in Long Island, and with the idea to ask him to write to the Queen of the Belgians. Now, while they were there, they decided well maybe one shouldn't write to the Queen, one should write to the Belgian Secretary of State. So, on that visit, that was the first visit which Szilard did with Vignor, Einstein, in German, dictated a draft to the Belgians, and this draft was taken down by Vignor in long-hand, in German and then they left and Szilard went back to New York and made a copy of this German draft and translated it into English and with the idea of sending it to Belgium and also to let the Secretary of State know -- the Secretary of State of the United States know -- that such a thing was happening. Then Szilard talked to several of his friends and they thought, and Vignor particularly thought, that maybe the American government should be notified first. And so Leo found a way to reach President Roosevelt and on July 19th, 1939, he wrote a letter to Professor Einstein.

- 1:15:39 Gertrud Weiss Szilard: The interesting thing is we -- they never -- Leo knew Einstein for a long time but they never talked by first name you see, it was always "the Professor" and "Szilard." And so, Leo wrote to the Professor and said that maybe we'll hear the transcripts of the - of letters which we formulated on our first visit, but in the meantime I think maybe it would be better to write to the president and I'm enclosing a draft of what we might say to the President. And so they agreed to visit Einstein again but that time Vignor was gone - gone on vacation and Szilard never could drive so Teller was asked to drive to Peconic with him, and on this visit the Professor dictated -- he looked at Szilard's draft but he dictated another draft to the President in German. And again, Szilard took the whole thing back with him to New York and translated it - first did it typed in German and then translated into English and then made two tra-- two letters -- formulated two letters: a longer one and a shorter one and he sent it to the Professor and a few days later Einstein returned both letters he had sent with a very charming little handwritten note. Well it said, "I have signed both letters but I also would prefer the longer one, but the main thing is that you have finally overcome your inner resistances because it is always dubious if one wants to be all too clever," he was Einstein, you know. And so, they decided to send the longer letter. This was done by -- it was given to Alexander Sachs who was an economist at the Lehman Corporation to -- and to Roosevelt as well and Szilard kept the shorter one in his files and I have the shorter one.
- 1:17:38 Helen Hawkins: So this was the letter that when it did reach Roosevelt led in - in turn to the Manhattan Project?
- 1:17:44: Gertrud Weiss Szilard: Well in indirect ways it led first to the establishment of the Uranium Committee which met in October, 1939. And then nothing happened for quite a while and then in 1940 there was another meeting of the Uranium Committee and then this then led to the establishment of the Manhattan Project.
- 1:18:02 Helen Hawkins: Now in the -- in the Japanese documentary, there's mention made that there were these delays and that Szilard threatened the government. What, what was meant by that?
- 1:18:12 Gertrud Weiss Szilard: Well, I think the Japanese put it a little bluntly. He did not really threaten the government, but he said well if something is not done soon then I will publish a paper, which he himself had kept secret and he had published -- he in February 1940, he had not published, but he had written a paper about divergent chain reaction in a system of uranium where he used graphite to control this and this was really a paper on which the reactant patent was based. But he withheld the paper from publication on his own. And then when the government didn't do anything about this he says now if you don't do anything about it I will publish this paper. But the paper has been withheld; it was never published until we included it in volume one of the *Collected Works*.

- 1:19:05 Helen Hawkins: Let's go back a bit in time when -- when did Szilard first know Einstein?
- 1:19:11 Gertrud Weiss Szilard: Oh that goes back to his Berlin days in the 1920s. When Szilard was born in Hungary, you see and in 1898, he did all his schooling there; elementary and high school and then went-- was drafted into the army for a while and went to officer's training school then he, in 1918, he returned to Budapest and then there was first the regime of Horthy and then it was replaced by Béla Kun and so Szilard thought it would be better to go to Berlin, which he did and he started at the university there. First at the technical -- Technische Hochschule and then he went to the university, and this is when he met Einstein and he -- Szilard regularly attended his seminars and they became good friends then.
- 1:20:03 Helen Hawkins: Did he work under Einstein when he did his doctoral work?
- 1:20:06 Gertrud Weiss Szilard: No, he worked under [Max] von Laue. But, von Laue gave him a theme for his doctoral dissertation which Szilard couldn't do very much with. You see, so during the Christmas holidays, he thought well this would be a good time to loaf and to think, you see, and so he thought of another problem, and solved this during the Christmas holidays in a few weeks and then he was afraid to go to von Laue because it wasn't what von Laue had asked him to do.
- 1:20:40 [Dr. Gertrud W. Szilard]
- 1:20:40 Gertrud Weiss Szilard: And so he showed it to Einstein first and he had told him what he had done and Einstein said well "this can't be done," but Leo said "I did it," you see and Einstein was quite surprised that indeed it was a good solution and then he submitted it to von Laue, he gave it to him one afternoon and the next morning the telephone rang early and von Laue called and said "this has been accepted as your doctoral thesis."
- 1:20:59 Helen Hawkins: What was the subject of that thesis?
- 1:21:02 Gertrud Weiss Szilard: The subject of this was statistical work in thermodynamics which led to a second paper which he submitted about three years later and this second paper which was concerned with the Maxwell demon, and it's a very complicated paper. It became, as people say, the cornerstone of information theory and nobody paid any attention to this for many years until information theory was set up and then they said "uh huh, this goes back to 1925."
- 1:21:29 Helen Hawkins: Now, now we've heard that there were several patents that were issued jointly to Einstein and Szilard, what were they for?
- 1:21:36 Gertrud Weiss Szilard: Ya, there's some 17 patents which Einstein and Szilard had together. You see, Einstein, as you know, was in charge of -- worked for the patent office in Bern as a young man, and when he and Szilard talked about things I think

that both were interested in what I call saving the world you see? And for this you need -- one needs freedom. You can't do it when you have a nine to five job and when you have to produce papers. So, the idea was to have patents and to make so much money with patents that you have freedom to do whatever you please to do. So they had an idea for a pump for the refrigerator without moving parts and they filed some 17 patents on this in several countries, you see, and, but in the meantime, other refrigerators worked better so it was never used for a refrigerator, indeed it didn't find any use until atomic reactors were designed much later and they used this pump now for atomic -- for cooling atomic reactors.

1:22:43 Helen Hawkins: Now, Szilard is known as having been one of the first people to conceive of the idea of the chain reaction, how -- how did that come about?

1:22:52 Gertrud Weiss Szilard: Well he -- this is -- I can't describe it as extensively as he did in his reminiscences, but fortunately, you see, we know, we have his story on this. And he read a book by H.G. Wells, those of you who have seen the Japanese film you'll see that the Japanese make a big stink out of this you see -- they -- in fact they made a film of the whole book, you know. And in this book, which was written in 1913 and which Szilard read in 1932 H.G. Wells anticipated atomic energy and atomic bombs, you see. And this set Szilard thinking on nuclear energy. Now this was long before the fission of uranium, you see. But, in 1934 Szilard figured out that there must be such thing as a chain reaction, you see, if various elements are bombarded with neutrons, one of them will split into two parts with it release enormous amounts of energy. And so he filed a patent in general on the chain reaction in 1934. And, this patent then he wanted to keep secret so he assigned it to the British Admiralty.

1:24:08 Helen Hawkins: Why did he want to keep it secret?

1:24:10 Gertrud Weiss Szilard: Well because he -- you see Hitler at that time was ruling in Germany and his whole fear of -- at that time was that the Germans would put use in an atomic bomb and then of course he would live with the fruit of the world and he wanted to prevent this and he anticipated things always years ahead when nobody else thought of anything like that. So anticipated this in 1934 and did not want to publish the patent and gave it to the British Admiralty after the British War Office had turned him down, they thought this wasn't very interesting and this patent wasn't published until 1949.

1:24:52 Helen Hawkins: And when did Szilard leave Germany?

1:24:55 Gertrud Weiss Szilard: Well actually, he immigrated in 1931

1:24:59 Helen Hawkins: Immigrated?

1:25:00 Gertrud Weiss Szilard: He thought, to America.

- 1:25:01 Helen Hawkins: To America?
- 1:25:02 Gertrud Weiss Szilard: Yes, the quota was opened then and he thought this would be the land of the future, you see, but he did not change his residence. He made frequent trips to America, but did not change his residence actually until January 1938.
- 1:25:16 Helen Hawkins: But he left Germany for the last time when?
- 1:25:19 Gertrud Weiss Szilard: He left Germany for the last time in April 1933 and I remember this very well because I lived in Vienna at that time and he suddenly turned up in Vienna and I said "how come" and he said "well two days ago the -- there was a notice in the newspapers that the Nazis were not going to take the passports away from Jews" and so with this notice he immediately took the next train over the border, you see and this was very wise because the next day the trains were filled and you couldn't cross the border anymore. And he had prepared for this by having two suitcases packed, you know.
- 1:25:57 Helen Hawkins: He was ready to go [trails off]
- 1:25:58 Gertrud Weiss Szilard: He was ready to go for months.
- 1:26:01 Helen Hawkins: Now, the process of coming away from Germany and becoming established elsewhere was one that many Jews had to pursue.
- 1:26:11 Gertrud Weiss Szilard: Yes.
- 1:26:12 Helen Hawkins: And Szilard played quite a significant role there in helping to find exiled, shall we say, scientist work in other countries.
- 1:26:23 Helen Hawkins: Well, I remember already when he came to Vienna in April 1933, he had this concern, you see. Now how can we get the others out, you see? There's so many people stuck and how do we find jobs for them once we get them out? And he talked in Vienna with [Jacob] Marschak about it and several other economists who he knew and he also found -- Lord, what's his name...
- 1:26:52 Helen Hawkins: Um, I can't help you.
- 1:26:53 Gertrud Weiss Szilard: Anyway, he met an Englishman in Vienna and he promised help and so Szilard went to London and set up what was called at that time the Academic Assistance Council which now is called the Society for Visiting Scientists. And they found -- it was Russell, Bertrand Russell.
- 1:27:12 [Dr. Gertrud W. Szilard]
- 1:27:12 Gertrud Weiss Szilard: And they found no, Sir William Beveridge, whom we met in Vienna and who then worked with the Academic Assistance Council and Szilard

worked for a year or two on nothing else but trying to find jobs for his colleagues that were displaced from Germany and Austria.

- 1:27:32 Helen Hawkins: But then when -- when he came to the United States permanently that's when he began to -- to think seriously about the need for the American government to become involved?
- 1:27:39 Gertrud Weiss Szilard: Yes
- 1:27:48 Helen Hawkins: This would be after [trails off]
- 1:27:49 Gertrud Weiss Szilard: Not quite yet you see, the -- he seriously became to think about this in 1939. You see, it wasn't until January 1939 that [Niels] Bohr came to the United States and reported that [Otto] Hahn and [Fritz] Strassmann had found fission in uranium, which was late in 1938, you see, and then Szilard, of course, immediately thought: ah ha that's the element I've always been looking for and waiting for. And so, he immediately established a laboratory at Columbia University in New York, which had the equipment needed to do the kind of experiment he wanted to do and he worked as a guest at Columbia for three months in 1939, and by March 2nd, 1939 he and Walter Zinn had done the experiment which showed that more neutrons come out of uranium when it is bombarded with neutrons than go in, and this of course was the thing of which -- foundation of which -- a chain reaction.
- 1:28:50 Helen Hawkins: Now, after the Manhattan Project was established, Szilard then went to work in Chicago?
- 1:28:54 Gertrud Weiss Szilard: Yes.
- 1:28:59 Gertrud Weiss Szilard: Yes, you see the work was transferred from Columbia University to the University of Chicago.
- 1:29:04 Helen Hawkins: And there he worked?
- 1:29:04 Gertrud Weiss Szilard: He became chief physicist of what was called the Methodological Laboratory, and as the Japanese explained very well in their film, I never knew why it was called the Manhattan Project until the Japanese explained it [laughs], first the office of this Methodological Laboratory was in Manhattan and when they moved to Chicago they called it the Manhattan Project.
- 1:29:23 Helen Hawkins: And in Chicago he worked with [Enrico] Fermi?
- 1:29:26 Gertrud Weiss Szilard: In Chicago -- he already in New York had worked with Fermi and [Herbert L.] Anderson and Chi-- and in Chicago with Fermi and with all the others and when, you see, when the Manhattan Project came into being the Army had taken over and that was when Szilard's difficulties started because the Army established rules which were quite unacceptable to him like: that he couldn't talk

about his colleagues about certain things, you see, they comp-- compartmentalized the whole business.

- 1:29:54 Helen Hawkins: So this -- this was just something that was so unlike his usual scientific practice?
- 1:29:57 Gertrud Weiss Szilard: Yes, yes, yes
- 1:30:00 Helen Hawkins: Do you think that that kind of conflict with the Army was inevitable, or was it a personal kind of thing that might have been different if the leader hadn't been General Groves?
- 1:30:09 Gertrud Weiss Szilard: Well perhaps if it were -- had been a less rigid leader, but General Groves and Leo just didn't click.
- 1:30:16 Helen Hawkins: Now the next important...
- 1:30:18 Gertrud Weiss Szilard: And the animosity was entirely mutual, you see. As I found out now when I went through some of General Groves' papers have-- which have become available through the Freedom of Information Act so that was really quite shocking to know how bad it was.
- 1:30:31 Helen Hawkins: Now, when was it that Szilard began to feel that the bomb ought not to be used?
- 1:30:37 Gertrud Weiss Szilard: Well since he wanted -- since he wanted to have a bomb in order to prevent Hitler from getting it first, as soon as Germany was defeated in the spring of 1945 [trails off]
- 1:30:50 Helen Hawkins: Had he ever expected it to be used at all, the bomb?
- 1:30:54 Gertrud Weiss Szilard: Well he thought if Germany had used it, you see, then they would have to use it, but then when Germany was defeated, in the Spring of 1945, he felt -- well what are we doing here now? And why do we go on doing this? He felt it was unnecessary to go on doing anything. And then, when the war with Japan of course was not over, Szilard felt very strongly that it was not necessary to use the bomb against Japan. Not everybody agrees on this but all I can tell you is that that's what Szilard felt at that time and he really fought against using it against Japan and it was very -- you see I had -- I knew since 1936 when Szilard first told me about artificial radioactivity and the possibility of a chain reaction that such a thing was possible. Then, when the Manhattan Project was established in 1940 -- 42, I was not -- I couldn't ask any questions and only had circumstantial evidence - quite a bit of circumstantial evidence, but I did not know that a bomb was actually dropped until I read the papers on August 5th, 1945. And, the next day a letter came from Szilard, who was in Chicago, and it was kind of an apology to me. And he wrote at that time, well I have the letter here but we don't have time to read the whole thing, that I



undoubtedly have seen today's newspapers and he wanted to be sure that I knew that he did everything in his power to prevent this and that he thought it was the biggest blunder in history, both from a ten-year range point of view as from the moral point of view. And I always felt this letter was his apology to me for Hiroshima.

1:32:42 Helen Hawkins: Now we -- we only have a couple of minutes left in the program. The -- what I'd like to try to do in that short time is for you to tell us briefly how he met -- he redirected his life as a result of the end of the war.

1:33:00 Gertrud Weiss Szilard: Well, the major -- the major driving force was to prevent nuclear war, you see. And, because he predicted quite accurately that the Soviets would get it too, that other nations would also get the bomb, he once told me that the only secret about the atomic bomb is that it works, you see they didn't know until Alamogordo if it would work or not, but once that was done, then it's not difficult for other nations to produce a bomb. And he first saw the -- everything that's bothering us, even now, you see, how do we prevent nuclear war? And he participated in all the movements: in the Pugwash Movement, which is an international movement of scientists to -- of like-minded scientists, you see to prevent this catastrophe which all the scientists really feel would be the end of life on this earth, you see there is no such thing as -- you can't win a nuclear war. And so he devoted a great deal of time to this and he also established an American lobby, which was first called the Council for Abolishing War and is now called the Council for a Livable World and it's still going in Washington and in Boston respectively you see. So, in -- he also went, got away from physics and did biology and did some very fundamental work in biology which interested him very much. But, his major effort was directed against the prevention of nuclear war and towards disarmament.

1:34:33 Helen Hawkins: And through his biological work was it the way he finally came to be a fellow of the Salk Institute?

1:34:40 Gertrud Weiss Szilard: Right, it was for the biological work that he came -- that's how he came to La Jolla.

1:34:46 Helen Hawkins: The one book of his I think that's -- that people would like to know about especially is the collection of his short stories that's...

1:34:55 Gertrud Weiss Szilard: The voice -- You mean the *Voice of the Dolphins*?

1:34:56 Helen Hawkins: Yes

1:34:56 Gertrud Weiss Szilard: Yeah, well this is a collection of short stories which Szilard started to write in the '40s. But, in 1960 when he was very ill, at Memorial Hospital, he wrote -- instead of writing his biography which I always wanted him to write, you see, he dictated the, the story of the next 25 years. He was much more interested in the next 25 years than the past 25 years. And so this title story is called the "Voice of the Dolphins," it's nothing to do with dolphins, it is entirely fiction and it's really

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political satire and apparently it's still very good because it made prophecies which really are born out, you know?

- 1:35:42 Helen Hawkins: Well we hope that the people who have been learning this -- your information about the man behind the bomb will look to that book and learn a whole lot more about him from it. Thanks so much for sharing your reminiscences of Leo Szilard with us, and thank you very much for watching. [music plays]
- 1:36:07 [SET DESIGNER FLOOR DIRECTOR DON BENKE]
- 1:36:12 [CAMERAS RON TOSCHES RON THORNTON]
- 1:36:15 [AUDIO GREGG CONLEY]
- 1:36:18 [VIDEO MARC CHARON]
- 1:36:22 [TECHNICAL DIRECTOR DONN JOHNSON]
- 1:36:24 [DIRECTOR WILLIAM STRATFORD]
- 1:36:27 [PRODUCER HELEN HAWKINS]
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