Three Winters in the Sun:
EINSTEIN IN CALIFORNIA

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Einstein in the Labyrinth: An Introduction

– by Marsha Kinder

Finding a Focus

> There is snow on the mountains, but today the California sun was smiling again and I am sitting in my chair on the balcony and looking at Mount Wilson.
>
> – From Albert Einstein's Travel Diary, February 2, 1932

When Lori Starr, the Director of the Skirball Cultural Center in Los Angeles, proposed that our Labyrinth Project do an interactive installation for their exhibition on Albert Einstein, a show that originated in New York before moving on to Chicago and Boston, one of the first things director Kristy H. A. Kang and I did was to go to Boston's Museum of Science where the exhibition was then on display. Our goal was to find a unique take on this subject for the California venue – one not already covered by this extensive exhibition that seemed to explore every aspect of his life. After spending several enjoyable hours at the museum, we realized the one thing omitted was that brief period of time – those three winter terms, between 1930 and 1933 – when Einstein was a research associate at the California Institute of Technology in Pasadena. In Boston, this gap was smoothed over by the famous photograph of Einstein leisurely riding a bicycle – a 1933 snapshot taken in Santa Barbara that was adopted as the signature image for the entire exhibition but with a significant change: the California background had been replaced by a cosmic backdrop. Next to this altered image was a panel of text titled "The Path to Princeton," which treated both Caltech and this three–year interlude as merely a transitional path to his final East–Coast destination: "During a repeat visit to the California Institute of Technology, a colleague offered Einstein a position at the newly funded Institute for Advanced Study in Princeton, New Jersey." After reading that text and studying that image, we knew this gap – the repeat visits to California – would be the focus of our database documentary on Einstein.

During those three visits to California, momentous events were happening worldwide – events that would set the stage for World War II and the Cold War that followed. For, this was the time when Hitler and his Nazi party came to power in Germany and began their vicious campaign of anti–Semitism that would eventually lead to the murder of six million European Jews. It was the time when Stalin launched his infamous "purge trials" to rid the Communist Party of all those he considered enemies. It was the time when Japan,

a nation Einstein greatly admired, invaded Manchuria and began its ruthless occupation of China. It was the time of the Great Depression in the USA, when Franklin Delano Roosevelt was first elected President and inaugurated his "New Deal" as a means of economic recovery and social reform. And in the world of mass communication, it was the early days of radio when its potential as a transmitter of ideology was being explored, and the early days of talking pictures when cinema's new verbal powers strengthened both its nationalist dimensions and global reach as the most influential medium of the century.

These momentous events also brought transformative changes in Albert Einstein, changes that arose during those visits to California and that reverberated throughout the rest of his life. As a result of the rise of Hitler, Einstein abandoned his home in Germany and resettled permanently in the United States; he reexamined his pacifist position and decided to work for those fighting against the Third Reich; and, despite earlier declarations about being a loner and refusing to identify with any specific nationality or religion, he came to identify with his fellow European émigrés and declared his strongest bond was with "his own tribe," the Jewish people. In the bitter debates concerning the Soviet Union during this period, Einstein, like many other leftist intellectuals, had ambivalent feelings toward the Russian Experiment and particularly toward Stalin. Although he endorsed the equal distribution of wealth that took place under Communism, he remained suspicious about the curtailing of the individual's rights and decried Stalin's persecution of Jews. Yet, he vacillated over the purge trials, even though he had earlier tried to help Leon Trotsky gain asylum in Germany. Like FDR, Einstein used radio to transmit political speeches on behalf of various liberal causes; and, as if to better understand and leverage his own worldwide celebrity, he took a close look at the Hollywood studio system that specialized in megastardom and befriended Charlie Chaplin, whom he greatly admired. Despite his loyalty to the United States and his admiration for FDR, Einstein continued to support socialism and other leftist causes and harshly criticized the inequities of American capitalism, racism and McCarthyism, which he associated with Nazi Germany. In 1932 the FBI opened a file on Einstein and his left–wing activities that would have dire consequences in his later life.

In March 1933, at the end of his three visits to California, here is how Einstein was described in the *Los Angeles Times* :

> What emerges from contemporary news reports, from correspondence in the Caltech archives and the memories of a few who were there, is a portrait of a slightly raffish, sometimes puckish, fundamentally modest loner driven in two directions at once. There was the scientist whose passionate, almost religious, dedication to physics demanded solitude. And there was the humanist, driven, as Einstein himself explained it, by a 'pure love of justice' that made it hard to say 'no' to advocates of liberal causes

> eager to capitalize on his time and his reflected glory.... He was...as much attracted by the events of science in Pasadena as driven by stiffening winds of anti–Semitism in Germany.

Although this description is positive, Einstein is still depicted as a relatively passive figure driven by outside forces rather than as an autonomous agent responsible for introducing change, two rival interpretations of his behavior that haunted him throughout his life.

This same duality can also be found in one of the most famous popular representations of Einstein that emerged during his first visit to California – a photograph of the scientist proudly holding a puppet version of himself. On January 17, 1931, Einstein and a small group of his friends attended a puppet show called "Mr. Noah" performed by the Yale Puppeteers at El Teatro Torito on Olvera Street where they were surprised and delighted to find an Einstein puppet starring in the title role. After the show, Einstein good–humoredly offered a critique of the puppet and modified it to suit his own vision of himself. Claiming it was not fat enough, he crumpled up an old letter from his pocket and stuffed it inside the puppet's smock. The Biblical story being dramatized also lent itself to a dual assessment of Einstein's agency. On the one hand, Einstein played the heroic Noah who saved the world by leading endangered animals to Mt. Wilson (instead of Mt. Ararat). Yet, just as it was God who was using Noah to save the animals, it was the puppeteer who was controlling the puppet's movements in the play and Robert Millikan, the godlike President of Caltech, who was using Einstein to attract other refugee scientists to Mt. Wilson. Thus, this comic representation of the puppet inadvertently raised a serious question about Einstein's politics: Was he merely a childlike genius who was easily manipulated by others, or a masterful puppeteer who skillfully controlled his own representation?

In grappling with such questions, we decided not to strive for a unified vision of Einstein, but to concentrate instead on the fascinating contradictions that persisted throughout his life. How could a man who was such a great humanitarian treat members of his own family, especially his first wife and their two sons, so coldly? How could this theoretical genius be so interested in Hollywood and come to identify so strongly with silent film star Charlie Chaplin? How could this great champion of democratic values become the subject of a 1,500 page FBI file dedicated to monitoring his subversive activities? How could an ardent pacifist raise money for Zionist causes and come to be called the "grandfather" of the atomic bomb? How could this non–religious man and defender of the Arabs in Palestine come to be offered the Presidency of Israel? How could this cutting–edge physicist become such a strong opponent to quantum mechanics when his own writings helped to launch this theory? And how could the greatest scientist of the century spend the last three decades of his life searching for a unified field theory, a search that even he himself considered futile?

Leveraging Contradictions

> Einstein is the hardest person to say anything about. His own friends found him inscrutable, and not even their love of him offered a firm bridge of understanding.
>
> – Fritz Stern[1]

In pursuing these contradictions, we decided to focus on Einstein's relations with six communities with whom he interacted in California during those momentous three winters in the sun and with whom he maintained relations throughout the rest of his life: science, Jews, émigrés, household, Hollywood, and the FBI. This emphasis enabled us to structure this project as one of Labyrinth's urban memoirs, a subgenre of database documentary that explores the interaction between the subjectivity and experience of a complex person and the cultural and historical context in which he lived. For, like Einstein himself, all six of these interrelated communities had deep ties to Europe and were responsive to what was happening in other parts of the world, particularly to Hitler's rise to power in Germany in January 1933.

Science

In the early 1930s Robert A. Millikan and George Ellery Hale were striving to make Caltech the leading scientific institute in the nation – one that could equal or surpass their East Coast rivals. To do this, they needed to build a unique scientific community that would combine three crucial assets: the greatest scientific theorists from Europe, the most advanced scientific technology, and projects that would serve the economic and military interests of the nation. Although Einstein believed that science should strive for pure knowledge without being restricted by practical or nationalist goals, he was still drawn to Caltech by the presence of other leading scientists (many of whom were also Jewish European émigrés fleeing the political instability in Europe) and by the world's largest telescope, which could be used to test his theories. With this telescope Edwin Hubble discovered new galaxies and validated his own theory of the expanding universe, which Einstein was now forced to accept, even though it meant giving up his own idea of a "cosmological constant," which he now called "the greatest blunder in his life."

The scientific community at Caltech saw Einstein as the world's first celebrity scientist, one who could potentially boost the reputation of their Institute. His preeminent place in the history of theoretical physics had already been assured in 1905 (at the age of 26) through the publication of four groundbreaking papers on the Photoelectric Effect, Brownian Motion, the Special Theory of Relativity, and his famous equation $E=MC^2$. Along with his later General Theory of Relativity (published in 1916), these papers challenged Newtonian physics and changed our vision of the world. Yet, these new theories were

developed not by using the kind of high–powered hardware that was available at Caltech but by relying on visual thought experiments, which demanded solitude, mental concentration and mathematics. As his wife Elsa put it when told that Caltech's giant telescope was needed to discover the structure of the universe, "Well, well, my husband does that on the back of an old envelope."

Still, Einstein had always relied heavily on dialogues with others for developing and testing his theories. From his earliest days at the Polytechnic in Zurich, he learned how to strike a delicate balance between working in isolation and using others as "a sounding board" – whether it was his fellow student Mileva Marić, who later became his first wife, or math major Marcel Grossmann, whose lecture notes he borrowed to pass his exams, or his close friend Michele Besso at the Swiss Patent Office in Berne, who helped him formulate his revolutionary ideas in mathematical terms. Although many assume that Albert Einstein was a great mathematician, he acknowledged his own limitations in this field and always relied on others to help him, such as his assistant Walther Mayer whom he called his "human calculator." Yet he had great respect for mathematics as the language and creative principle of science and considered the acquisition of his "holy geometry book" to be just as important to his development as his childhood discovery of the compass.

After achieving world fame, Einstein prized his solitude all the more, which is one reason why he built a summer home in Caputh outside of Berlin. Yet he asked the architect Konrad Wachsmann to design a special space for engaging other scientists in discussion since he considered such dialogues to be an essential part of his working methods. Similarly, even though he would sometimes complain about the many distractions at Caltech, he was still drawn by Millikan's invitation to come join the men who were intensely interested in discussing the latest developments in physics and astronomy.

During his years at Caltech Einstein continued to oppose quantum mechanics, a theory that explores the subatomic world of physics and that was led by fellow Nobel prize winners Niels Bohr and Werner Heisenberg. Ironically, one of Einstein's own "miracle year" papers of 1905 helped launch quantum theory, which had become the reigning field in physics. In his paper titled "On a Heuristic Point of View Concerning the Production and Transformation of Light," Einstein claimed that light is not only an electromagnetic wave but that it is also comprised of particles called "light quanta." In fact, it was this paper (rather than his theory of relativity) that won Einstein the 1921 Nobel Prize in Physics. Although he found quantum mechanics useful for describing the subatomic realm, he did not think it could provide an adequate theoretical basis for "the whole of physics." He opposed it because it relied on laws of probability rather than on firm predictions that could be verified by direct observations and because it violated his instinctive belief in natural order. As Einstein insisted, "God doesn't play dice with the universe."

The story of Einstein's close friend Paul Ehrenfest shows the intensity of this struggle against quantum theory. An Austrian physicist and mathematician from Vienna, Ehrenfest befriended Einstein in 1912 and began a correspondence with Niels Bohr in 1918. Although Einstein lavished great praise on Bohr in his letters to Ehrenfest in the early 1920s, his opposition to quantum mechanics grew stronger over the decade. Ehrenfest tried to reconcile the theoretical differences between Bohr and Einstein, yet ultimately grew to hate quantum theory even more passionately than Einstein, or at least that's what Einstein would have us believe. For in 1933, when Ehrenfest committed suicide, Einstein wrote an elegy that blamed his friend's despair on his resistance to quantum theory.

Increasingly perceived by younger physicists as an outsider past his prime, Einstein devoted the last 25 years of his life (from 1930 to 1955) to pursuing what many others considered his quixotic quest for a "unified field theory." Although acknowledging that his "chance of success was very small," he was still willing to pursue this so-called "hopeless quest" because his own position in the history of science was already "assured." Thus, he could afford to take this risk and considered it his duty to do so because younger scientists, who were trying to make their way in the world, could not.

According to Einstein's biographer, Albrecht Fölsing, the key to Einstein's "theory of everything" was his strong belief in progress. Otherwise "it would be difficult to understand why he felt that his stubborn search for a unified field theory was also overwhelmingly important for quantum theory...and why he never accepted quantum mechanics as the last word. Younger physicists derided Einstein's attitude as intransigent or reactionary; but it was not the whim of a pigheaded elderly man.... He was a visionary who believed that he at least surmised the direction in which the 'promised land' should be sought."[2]

Now, half a century after his death, this quest for a unified field theory has become one of the hottest fields in theoretical physics, especially with the development of string theory and with the introduction of new super computers and other cutting-edge technologies. So scientists are now revisiting and reevaluating the work Einstein was doing during those three winter semesters at Caltech.

Jews

Albert Einstein grew up in a secular German Jewish family that strongly believed in assimilation. Except for a brief period of religious fervor as a child, which ended as soon as he became absorbed in science and mathematics, he never believed in a personal god and never identified exclusively with Jews.

And yet, from the discovery of his "holy geometry book" at the age of twelve to his quest for the unified field theory through the end of his life, Einstein found his Judaism to be compatible with his science. As he put it in 1930, "The Jewish religion demands no act of faith – in the popular sense of the term – on the part of its members. And for that reason there has never been a conflict between our religious outlook and the world outlook of science."[3] In fact, he saw the orderliness of nature as the highest manifestation of God. He believed in the God of the Jewish philosopher Spinoza "who reveals himself in the harmony of all that exists." He also claimed that, by holding intellectual accomplishments in such high esteem, Judaism creates an atmosphere that encourages the development of talent, and by cultivating a strong critical spirit, it prevents blind obedience to any moral authority. Thus, he could embrace secular Judaism because it celebrated three of his own ideals – the pursuit of knowledge for its own sake, a fanatical love of justice, and a desire for personal independence.

The Los Angeles Jewish community saw Einstein as the most famous Jew in the world and a living contradiction of Hitler's anti–Semitic propaganda about Jewish inferiority. Like many other Jews throughout history, he helped prove that intellect is the best weapon. Although he remained a secular Jew and called himself "a deeply religious non–believer," the religious community urged him to promote Jewish and Zionist causes, which he did with great success. While in California, he attended many banquets and gave many speeches to help raise money for the Jews and was hosted by many prominent Jewish industry leaders, bankers, businessmen and movie moguls. He attended events at the Wilshire Boulevard Temple, the most important Los Angeles synagogue during that era, and frequently shared the podium with its popular director, Rabbi Edgar F. Magnin, who was known to be a great orator and who frequently spoke about Einstein. Magnin was also there on a bicycle next to Einstein at banker Ben Meyer's ranch in Santa Barbara in 1933, when his famous iconic snapshot was taken.

In the 1930s Jews may have been well represented in Los Angeles, but they were scarce in Pasadena, which was known as a bastion of WASP (White Anglo–Saxon Protestant) culture. Although Robert Millikan had hired several prominent Jewish scientists as visiting research associates at Caltech, the Einsteins were aware of the anti–Semitism in Pasadena, which was no worse than what they were later to encounter at Princeton. Despite their celebrity status, they were still treated as outsiders. Yet, Einstein considered this American prejudice against Jews to be a minor annoyance in comparison to the rabid racism that was suffered by African Americans (or Negroes, as they were then called).

Still, during this period of escalating anti–Semitism in the 1930s, when he himself was on Hitler's death–list, Einstein developed a new feeling of solidarity with the Jewish people and felt that he should defend his own "tribe." Yet he never considered Jews to be

"the Chosen People" and frequently disagreed with the political policies of many other Jewish leaders, insisting that the Jewish people would ultimately be judged by how they treated the Arabs. It was this paradox that would later lead both to his being offered the Presidency of Israel and his decision to turn it down.

Émigrés

The community of exiles and émigrés in Los Angeles saw Einstein as a fellow European refugee fleeing Hitler's Third Reich and the coming world war. They also saw him as a new kind of intellectual hero who could have a major impact on American culture, one whose commitment to pacifism, internationalism and civil rights provided viable alternatives to nationalism and militarism. Yet during this period he also reevaluated his pacifism because he believed that Hitler's Third Reich must be defeated at all costs.

Although Einstein would later choose to become an American citizen and would consider himself "fortunate" to be here in the USA, during these early visits to California his reaction still swung between admiration and disbelief. Sure, he could appreciate California's pleasures: he loved the desert and saw Pasadena as a paradise with its eternal sunshine and lush gardens. But, he still felt "more attached to the Old Europe, with its heartaches and hardships" and longed to return there.[4]

Like most émigrés, Albert Einstein experienced a distance both from the culture he had left behind and the new one he was entering. But his unique status as a world famous German émigré created a bridge between all of the other communities he interacted with in California: with blood relatives, whom he helped relocate in America; with Jewish refugees fleeing Hitler whose entry he tried to ease; with European scientists seeking academic positions who would later help America win World War II; with European artists and intellectuals who would transform Hollywood and greatly enrich American culture; and with the FBI, who considered him an undesirable alien whose political activities needed to be closely monitored. The Hopi Indians saw him differently. When he visited their tribe in 1931, to honor him and his famous scientific theory, they named him, "The Great Relative." This title later acquired new meaning once he became an advocate for his fellow refugees.

Like many other émigrés, Einstein found one of the primary obstacles to assimilation to be the acquisition of a new language. As he put it in a diary entry for December 6,1931, "I am also learning English, but it does not register very well with my old brain." Even in 1944, he complained: "I cannot write in English, because of the treacherous spelling. When I am reading, I only hear it and am unable to remember what the written word looks like."[5] According to Peter Bergmann, one of his collaborators at Princeton: "When the argument

became really intricate, Einstein, without realizing it, would lapse into German. He thought more readily in his native tongue."[6]

This problem was compounded by the fact that verbal language had never come easily to Einstein. He didn't start speaking until he was at least three years old, which worried his parents so much that they consulted a doctor. Several scholars have speculated that this delay may have contributed to the originality of his thinking. In describing his visual thought experiments, Einstein himself reported: "I very rarely think in words at all. A thought comes, and I may try to express it in words afterward."[7] The most interesting speculations on young Einstein's delay in learning to speak come from psychologist Erik Erikson, who suggested the boy may have realized that words sometimes mislead us into thinking "too early and too glibly" that we understand something we don't really grasp simply because we know what to call it.[8] But alternative systems of representation – such as visual images, mathematics, music and even a foreign language – help defamiliarize phenomena by reminding us of the distance between signs and their referents.

Yet the adult Einstein mastered verbal language, certainly in German and even to a limited degree in English. According to Prof. J.A. Wheeler, a colleague at Princeton, "In all of his lectures and in his discussions he spoke what I thought was beautiful English.... The words came not gushing out, but each one carefully measured and mouthed in full."[9] Einstein admired such verbal concision in others, for he praised both George Bernard Shaw and Sigmund Freud for this quality in their writings. When comparing Jung and Freud, he "preferred" Freud, not because he believed him (for he frequently found his ideas a "bit far fetched") but because "I very much love his precise style and his original thinking."[10] These qualities led Einstein to choose Freud as his correspondent for an epistolary exchange on the social and biological roots of militarism, a series of pacifist letters published by the League of Nations in 1933 under the title *Why War?*. After acknowledging Einstein's "great admiration for Freud's literary abilities," Robert Schulmann observes: "Einstein's prose is also wonderful German, very nuanced and constructed in such a way that every word has its place, and not a word is wasted."[11]

Household

Einstein described himself as a loner, yet in his own household he surrounded himself with an extended family that provided him with the intimacy, collaboration and domestic order that he needed to pursue his work. Despite his frequent complaints about overprotective females trying to mother him, Einstein always depended on capable women to manage the practical details of his life, an arrangement modeled on his early relationship with his mother Pauline and younger sister Maja. When he went to California, he was accompanied not only by his mathematical assistant Walther Mayer, but also by

his second wife Elsa and his devoted secretary Helen Dukas. Although he considered all three essential, they were required to keep their distance in order to protect Einstein from turbulent emotional demands and to preserve the solitude he needed for "deep thinking."

These were similar restrictions to those he had imposed on his first wife Mileva and their two sons, Hans Albert and Eduard, who remained behind in Europe. Einstein's bitter estrangement from Mileva caused him to suffer the loss of both sons, yet he never regretted the divorce, which he considered essential for his own survival and for the continuation of his work. As he put it in a letter dated September 8, 1916: "Separation from Mileva was a matter of life and death for me.... Thus I deprive myself of my boys, whom I still love tenderly."[12] Though he later renewed his relations with his elder son Hans Albert, once he emigrated to the United States and became a professor of hydrology at Berkeley, Einstein remained estranged from his younger son Eduard.

It is Eduard's story that is most tragic and the one where it is most difficult to understand Einstein's behavior. In Fall 1932, shortly before Einstein sailed to the United States for his third semester at Caltech, Eduard was hospitalized with schizophrenia. After visiting him in 1933, Einstein concluded this was a hopeless congenital condition inherited from Mileva. Despite the urging of close friends to keep in contact with his son, Einstein refused to see Eduard, who desperately sought his father's approval but also felt deep resentment toward him for having abandoned the family. Although Eduard wrote his father hundreds of poems and letters, Einstein never replied; but he did help pay for Eduard's medical treatments. On January 4, 1954 shortly before his death, Einstein tried to justify his rejection of Eduard to his friend Carl Seelig: "There is a block behind it that I cannot fully analyze. But one factor is that I think I would arouse painful feelings of various kinds in him if I made an appearance in whatever form."[13] According to Evelyn Einstein, Albert's granddaughter who visited her Uncle Eduard at a Swiss sanitarium, "his worst problem was not that he was mentally ill...[but that] he was institutionalized," which "is a cruel, cruel thing to do to a human being."[14]

What makes Eduard's fate even more tragic is that by all reports, he was the one who had inherited his father's genius, even if he chose to direct it toward literature, music and the arts rather than science. Albrecht Fölsing reports that "while still at school he [Eduard] was fascinated by Sigmund Freud's writings, and after graduation he determined to study medicine."[15] By modeling himself after Freud, the man whose literary abilities were highly valued by and surpassed those of his father, perhaps Eduard hoped to rival his father's achievement. He may have been aware of the strange father/son rivalry that existed between Freud and Einstein, as two generations of Jewish intellectuals whose ideas were equally powerful in transforming the world. According to psychologist Erik Erikson:

> Freud's and Einstein's correspondence...is dominated by a certain ambivalent discomfort over the fact that together they dominated ...the spirit of the times, and yet really did not know what to do with each other...[According to Einstein] Freud's main fault [was]... the old man's "exaggerated trust in his own associations"... Freud...was Einstein's senior by a quarter of a century, and Einstein was always frank in acknowledging his inability to follow Freud's theories, while he sincerely admired his grand style... When they met for the first time in 1927 in the house of Freud's son Ernst in Berlin, Freud reported to Ferenczi, "He understands as much about psychology as I do about physics, so we had a very pleasant talk." After that first meeting, Freud, who was always wary of young rivals, wrote of Einstein: "He looks older than me, is coming up to 48 years old!"[16]

Like Freud, Einstein was being challenged by a younger generation of scientists in his field (the quantum theorists) rather than by his son Eduard, who, despite his brilliance, had always been a sickly child and who (like his mother Mileva) threatened to distract Einstein from his work. Perhaps that's why he made such cold–hearted statements to close friends like Paul Ehrenfest and Michele Besso. Fölsing reports that "when Ehrenfest's son Vassike (who had Down syndrome) had to be placed in an institution," Einstein advised him,"Valuable individuals must not be sacrificed to hopeless things."[17] This advice is all the more chilling when one learns that Ehrenfest ended up shooting Vassike before he committed suicide, actions Einstein curiously attributed to his friend's conflict with quantum theory. Concerning his own son Eduard, Einstein wrote to Besso: "Perhaps we should have done with Eduard what the old Spartans did with the weak children, expose them on the mountains outside of Sparta." Historian Robert Schulmann acknowledges, "It's one of the ugly things he said."[18] Like Ehrenfest's final solution with respect to his son, these comments by Einstein evoke the story of Abraham and Isaac that lies at the heart of Judaism. But the underlying fear of weakness on which they are based can also be read ironically as both a reaction against and a reverberation of Hitler's rationale for genocide.

Einstein considered both of his marriages to be failures and by 1952 could even jokingly compare these domestic horrors with the Holocaust: "I'm doing just fine, considering that I have triumphantly survived Nazism and two wives."[19] Although he had always been a womanizer who railed against monogamy, he chose to make his first cousin Elsa his second wife, but only after he had first been turned down by her daughter Ilsa. Elsa knew he continued to be unfaithful throughout their marriage, but she still enjoyed being the wife of the great man, even though she complained it was a difficult role to play.

Einstein could also be loyal, particularly to male colleagues and friends. One reason he decided to accept a permanent position at Princeton rather than stay at Caltech, was that the former was willing to offer a separate paid position for his Jewish assistant Walther Mayer, an important member of his household who would otherwise be a homeless

refugee. Perhaps this incident reminded him of an earlier period in his youth when his own family resettled in Milan and he was warmly accepted into the alternative households of the Freis in Munich and the Wintelers in Aarau, who both treated him as part of their respective families. As if in compensation, for the rest of his life Einstein would continue to provide money, affidavits and advice to help members of his extended family resettle in the USA.

Yet, Einstein failed to reply to the plaintive requests for assistance from Marie Winteler, his first love from Aarau who reminded him of how kindly he had been treated by her mother. And he rarely responded to the letters from his adopted granddaughter Evelyn (who some claimed was his own illegitimate daughter). Possibly Helen Dukas never showed him Marie's letters or those from Evelyn and Eduard, for fear they might distract him from his loftier theoretical pursuits. She was so vigilant in protecting the household that he playfully dubbed her his Cerberus, the mythical dog guarding the entrance to Hades.

Still, Einstein's household was enlivened and humanized by music. Throughout his life, he used music as an alternative language that helped him make emotional connections with others. He played duets with his mother and sister Maja, with his first love Marie, and with his first wife Mileva. Music also helped to restore emotional bonds with his son Hans Albert and to form new ones with his new friend in California, Charlie Chaplin.

Hollywood

Hollywood and the mass media treated Einstein as a megastar whose popularity rivaled that of silent film idol Charlie Chaplin. As the two most recognizable figures in the world, these celebrities were drawn to each other, as friends and alter–egos. They both distrusted verbal language and placed more faith in images, music and laughter rather than words. Although they shared a childlike innocence, they both were notorious womanizers. They made fun of those who were pompous and self–important and frequently made jokes at their own expense, yet they were both perfectionists who recognized their own genius and who imposed rigorous standards on their own work. The extraordinary genius of Einstein and Chaplin cultivated an idiosyncrasy that set them apart from others and facilitated their identification with each other. This idiosyncrasy helped arouse a fear of insanity, an affliction both men witnessed in a loved one close to home: Chaplin in his own mother, and Einstein in his son Eduard. As if partly to disavow this fear, both men strongly identified with the common man, an identification that their comical physical appearance and public personae helped make credible. They were both lifelong leftists who stood up for the working class and condemned the complacency and greed of the bourgeoisie. Despite their fierce allegiance to individuality and their contempt for authority, these mavericks both remained committed to Marxist ideals and continued to

fight for the underdog. While such a position was admired in Europe, it subjected both men to FBI scrutiny and false accusations back in the States.

Einstein at first was baffled and disturbed by the intrusiveness of the media attention and by the huge crowds that both he and Chaplin attracted at the Hollywood premiere for *City Lights*. Yet during this period in California he deliberately set out to get a close look at the Hollywood studio system by visiting three major studios: Universal, where Carl Laemmle arranged a special screening of the antiwar film, *All Quiet on the Western Front* ; Warner Brothers, where the special effects department shot a trick movie of the Einsteins flying in a car over Hollywood; and MGM, where Albert and Elsa watched a German–language version of a film being made for the European market. Although the Hollywood stars came out to meet Einstein at all of these events, he claimed the only two men in Hollywood he wanted to meet were Charlie Chaplin and Upton Sinclair, who both knew how to leverage their celebrity on behalf of their leftist politics. This was a lesson Einstein quickly mastered.

Einstein's reputation began to be established within the scientific community in 1905, when he published those four papers that challenged Newtonian physics and changed our vision of the world. But it wasn't until 1919, when Eddington's solar eclipse experiments validated Einstein's radical theory of relativity, that he drew the attention of the mass media who transmitted his fame to the general public worldwide. This celebrity reached new levels of hysteria in 1921 when Einstein made his first trip to the USA, accompanying Zionist leader Chaim Weizmann to New York City to help raise money to build Hebrew University in Jerusalem. Once he reached Hollywood at the end of 1930, that celebrity turned into a glamorous megastardom that was never surpassed and that has never really died down. This celebrity status enabled him to leave traces throughout Southern California – both in the cultural landscape and in popular memory – traces that are still perceptible throughout the rest of the world.

The FBI

Unlike his link to the other five communities, Einstein's relations with the Federal Bureau of Investigation were involuntary. They were inaugurated by a letter sent by a Mrs. Randolph Frothingham (who sounds like a character right out of a Marx Brothers comedy) and her Woman Patriot Corporation, a group of "estimable Massachusetts ladies" who had compiled a "blacklist" of subversive names (including Albert Einstein) and who were now trying to keep this "undesirable alien" from being admitted into the United States. Einstein tried to dismiss them with humor, but, like the right–wing Pasadena ladies (who snubbed Einstein's socialist friend Upton Sinclair) and the Daughters of the American Revolution (who tried keeping African American singer Marian Anderson from performing

in Washington D.C.), these forerunners of McCarthyism were no laughing matter. They succeeded in getting the FBI to open a file on Einstein that eventually grew to nearly 1,500 pages and proved to have serious consequences.

On the one hand, this FBI file nearly kept Einstein from getting a visa for his return to California in December 1932 on the eve of Hitler's rise to power (which could have endangered his life), and later during World War II it resulted in his being denied a security clearance. This denial prevented him from working on the Manhattan Project – even though his own letter to FDR (warning him that the Germans were developing the bomb) served to launch it and even though the atomic bomb it produced was partly made possible by his general theory of relativity and his famous formula, $E=MC^2$. The FBI file also contained several ludicrous accusations, including a fabricated story about Einstein and Chaplin being found in a suite at the Hotel Ambassador, conspiring to convert an "A" list of Hollywood stars into rabid communists, and a letter accusing Einstein of being involved in the famous kidnapping of the Lindbergh baby.

On the other hand, as Fred Jerome argues, despite the file's right-wing bias and its many factual errors and ridiculous fabrications, it still provides the most complete record of Einstein's serious political activities.[20] It documents his efforts to fight racism and advocate anti-lynch laws, to support the Abraham Lincoln Brigade that was fighting for the Republican cause in the Spanish Civil War, to allow more Jewish refugees into the country, to speak out against McCarthyism, and to urge the US and other nations to turn over their atomic and nuclear weapons to an international body like the United Nations. This file enables us to see Albert Einstein as a serious political activist rather than merely as a naive professor who was easily manipulated by others, as Robert Millikan and others would have us believe. As a result, Einstein emerges as a more complex, multidimensional figure.

Interactive Einstein

Think of Albert Einstein as a living presence whose enormous impact generated a strong gravitational pull that dramatically reshaped the space-time fabric of his world. In this DVD-ROM version of our interactive installation, we assess this man and his impact through several different frames of reference, which lead not to "the one true picture of Einstein" but to a multi-perspective view of this man and his times.

In this description of Einstein's impact, we purposely use these terms from physics – like "space-time," "particles" and "gravitational waves" – not literally but metaphorically. For, such analogies indicate the widespread influence that Einstein's theories had on what appeared to be unrelated fields – in philosophy, the social sciences, and the arts

(particularly in modernist movements like cubist painting and atonal music). Here's how the famous linguist and literary theorist Roman Jakobson described the influence:

> Those of us who were concerned with language learned to apply the principle of relativity in linguistic operations; we were consistently drawn in this direction by the spectacular development of modern physics and by the pictorial theory and practice of cubism, where everything `is based on relationship' and interaction between parts and wholes, between color and shape, between the representation and the represented. `I do not believe in things,' Braque declared, `I believe only in their relationship.' ...Vladimir Majakovskij, the Russian avant–garde poet, from his first anxious glimpses of 1920 into the theory of relativity...praised `the futurist brain of Einstein.'[21]

The story of Einstein that emerges in *Three Winters in the Sun* is not a neat classical three–act structure, with a clear–cut beginning, middle and ending and a neat linear causality. Rather, it is more like those open–ended, multitrack narratives that we find in modernist novels such as John Dos Pasos' *USA* and Virginia Woolf's *To the Lighthouse*, or in venturesome nonlinear films from the 1940s and 1950s like *Citizen Kane* and *Rashomon* – experimental narratives that were influenced by Einstein's theory of relativity. Or, as we prefer to see it, it is more like the kind of database narrative that psychoanalyst Erik Erikson envisioned, even without the help of computers:

> We all have before us a by now standard series of biographic data reported by Einstein or by others. We can only put these data on cards, shuffle them, and spread them out before us to see whether we can discern an order fit for the particular game we think we know how to play.[22]

We believe this kind of nonlinear, open–ended storytelling is ideally suited to the interactive narratives and on–line games one finds in cyberspace – where story fragments can be drawn out of a rich narrative field and recombined by interactors like you according to your own chosen lens or frame of reference. We hope this structure encourages you, as you move through this DVD–ROM, to remix these fragments and come up with your own vision of Albert Einstein.