



# COLLECTED AND EDITED BY Alice Calaprice

with a foreword by Freeman Dyson

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#### **Foreword**

My excuse for writing this foreword is that I have been for thirty years a friend and adviser to Princeton University Press, helping to smooth the way for the huge and difficult project of publishing the Einstein Papers, a project in which Alice Calaprice has played a central role. After long delays and bitter controversies, the publication project is now going full steam ahead, producing a steady stream of volumes packed with scientific and historical treasures.

I knew Einstein only at second hand through his secretary and keeper of the archives, Helen Dukas. Helen was a warm and generous friend to grownups and children alike. She was for many years our children's favorite babysitter. She loved to tell stories about Einstein, always emphasizing his sense of humor and his serene detachment from the passions that agitate lesser mortals. Our children remember her as a gentle and good-humored old lady with a German accent. But she was also tough. She fought like a tiger to keep out people who tried to intrude upon Einstein's privacy while he was alive, and she fought like a tiger to preserve the privacy of his more intimate papers after he died. She and Otto Nathan were the executors of Einstein's will, and they stood ready with lawsuits to punish anyone who tried to publish Einstein documents without their approval. Underneath Helen's serene surface we could occasionally sense the hidden tensions. She would sometimes mutter darkly about unnamed people who were making her life miserable.

Einstein's will directed that the archives containing his papers should remain under the administration of Otto Nathan and Helen until they determined it was time to make a transfer, and should thereafter belong permanently to the Hebrew University in Jerusalem. For twenty-six years after Einstein's death in 1955, the archive was housed in a long row of filing cabinets at the Institute for Advanced Study in Princeton. Helen worked every day at the archive, carrying on an enormous correspondence and discovering thousands of new documents to add to the collection.

In early December 1981, Otto Nathan and Helen were both in apparently good health. Then, one night, when most of the Institute members were on winter holiday, there was a sudden move. It was a dark and rainy night. A large truck stood in front of the Institute with a squad of well-armed security guards in place. I happened to be passing by and waited to see what would happen. I was the only visible spectator, but I have little doubt that Helen was also present, probably supervising the operation from her window on the top floor of the Institute. In quick succession, a number of big wooden crates were brought down in the elevator from the top floor, carried out of the building through the open front door, and loaded onto the truck. The guards jumped

on board and the truck drove away into the night. Before long, the archive was in its final resting place in Jerusalem. Helen continued to come to work at the Institute, taking care of her correspondence and tidying up the empty space where the archives had been. About two months later, suddenly and unexpectedly, she died. We never knew whether she had had a premonition of her death; in any case, she made sure that her beloved archive would be in safe hands before her departure.

After the Hebrew University took responsibility for the archive and after Otto Nathan's death in January 1987, the ghosts that had been haunting Helen quickly emerged into daylight. Robert Schulmann, a historian of science who had joined the Einstein Papers Project a few years earlier, received a tip from Switzerland that a secret cache of love letters, written around the turn of the century by Einstein and his first wife, Mileva Marić, might still exist. He began to suspect that the cache might be part of Mileva's literary estate, brought to California by her daughter-in-law Frieda, the first wife of Einstein's older son, Hans Albert, after Mileva's death in Switzerland in 1948. Though Schulmann had received repeated assurances that the only extant letters were those dating from after Mileva's separation from Einstein in 1914, he was not convinced. He met in 1986 with Einstein's granddaughter, Evelyn, in Berkeley. Together they discovered a critical clue. Tucked away in an unpublished manuscript that

Frieda had prepared about Mileva, but not part of the text, were notes referring with great immediacy to fifty-four love letters. The conclusion was obvious: these letters must be part of the group of more than four hundred in the hands of the Einstein Family Correspondence Trust, the legal entity representing Mileva's California heirs. Because Otto Nathan and Helen Dukas had earlier blocked publication of Frieda's biography, the Family Trust had denied them access to the correspondence and they had no direct knowledge of its contents. The discovery of Frieda's notes and the transfer of the literary estate to the Hebrew University afforded a new opportunity to pursue publication of the correspondence.

In spring 1986, John Stachel, at the time the editor responsible for the publication of the archive, and Reuven Yaron, of the Hebrew University, broke the logiam by negotiating a settlement with the Family Trust. Their aim was to have photocopies of the correspondence deposited with the publication project and with the Hebrew University. The crucial meeting took place in California, where Thomas Einstein, the physicist's oldest great-grandson and a trustee of the Family Trust, lives. The negotiators were disarmed when the young man arrived in tennis shorts, and a friendly settlement was quickly reached. As a result, the intimate letters became public. The letters to Mileva revealed Einstein as he really was, a man not immune from normal human passions and weaknesses. The letters are masterpieces of pungent

prose, telling the sad old story of a failed marriage, beginning with tender and playful love, ending with harsh and cold withdrawal.

During the years when Helen ruled over the archive, she kept by her side a wooden box which she called her "Zettelkästchen"—her little box of snippets. Whenever in her daily work she came across an Einstein quote that she found striking or charming, she typed her own copy of it and put it in the box. When I visited her in her office, she would always show me the latest additions to the box. The contents of the box became the core of the book Albert Einstein, the Human Side, an anthology of Einstein quotes which she co-edited with Banesh Hoffmann and published in 1979. The Human Side depicts the Einstein that Helen wanted the world to see, the Einstein of legend, the friend of schoolchildren and impoverished students, the gently ironic philosopher, the Einstein without violent feelings and tragic mistakes. It is interesting to contrast the Einstein portrayed by Helen in The Human Side with the Einstein portrayed by Alice Calaprice in this book. Alice has chosen her quotes impartially from the old and the new documents. She does not emphasize the darker side of Einstein's personality, and she does not conceal it. In the brief section "On His Family," for example, the darker side is clearly revealed.

In writing a foreword to this collection, I am forced to confront the question whether I am committing an act of betrayal. It is clear that Helen

would have vehemently opposed the publication of the intimate letters to Mileva and to Einstein's second wife, Elsa. She would probably have felt betrayed if she had seen my name attached to a book that contained many quotes from the letters that she abhorred. I was one of her close and trusted friends, and it is not easy for me to go against her express wishes. If I am betraying her, I do not do so lightheartedly. In the end, I salve my conscience with the thought that, in spite of her many virtues, she was profoundly wrong in trying to hide the true Einstein from the world. While she was alive, I never pretended to agree with her on this point. I did not try to change her mind, because her conception of her duty to Einstein was unchangeable, but I made it clear to her that I disliked the use of lawsuits to stop publication of Einstein documents. I had enormous love and respect for Helen as a person, but I never promised that I would support her policy of censorship. I hope and almost believe that, if Helen were now alive and could see with her own eyes that the universal admiration and respect for Einstein have not been diminished by the publication of his intimate letters, she would forgive me.

It is clear to me now that the publication of the intimate letters, even if it is a betrayal of Helen Dukas, is not a betrayal of Einstein. Einstein emerges from this collection of quotes, drawn from many different sources, as a complete and fully rounded human being, a greater and more astonishing figure than

the tame philosopher portrayed in Helen's book. Knowledge of the darker side of Einstein's life makes his achievement in science and in public affairs even more miraculous. This book shows him as he was—not a superhuman genius but a human genius, and all the greater for being human.

A few years ago, I had the good luck to be lecturing in Tokyo at the same time as the cosmologist Stephen Hawking. Walking the streets of Tokyo with Hawking in his wheelchair was an amazing experience. I felt as if I were taking a walk through Galilee with Jesus Christ. Everywhere we went, crowds of Japanese silently streamed after us, stretching out their hands to touch Hawking's wheelchair. Hawking enjoyed the spectacle with detached good humor. I was thinking of an account that I had read of Einstein's visit to Japan in 1922. The crowds had streamed after Einstein then as they streamed after Hawking seventy years later. The Japanese people worshiped Einstein as they now worshiped Hawking. They showed exquisite taste in their choice of heroes. Across the barriers of culture and language, they sensed a godlike quality in these two visitors from afar. Somehow they understood that Einstein and Hawking were not just great scientists but great human beings. This book helps to explain why.

Freeman Dyson Institute for Advanced Study Princeton, New Jersey, 1996, 2000, 2005, 2010



# A (Long) Note about This Final Edition

More than fifteen years have passed since I deliberately began to gather information for the publication of the original edition of The Quotable Einstein of 1996. Before that, I had already done so informally after I began work with the Einstein papers in 1978 at the Institute for Advanced Study in Princeton. These past years have greatly enriched my life as I came to know what it's like to be on the other side of the publishing world—that is, what it's like to be author rather than editor, to be signing books in bookstores and for friends, to be reviewed and interviewed. Especially exciting was the year 2005, the centennial year of Einstein's theory of special relativity and the fiftieth anniversary of his death, when so many Einstein colleagues and I participated in a number of international, national, community, and media events, including the dedication of a longawaited statue of Einstein in Princeton.

But now it is time to hang up this particular hat and wrap things up. This project has been a work in progress since the beginning, a bit like my everchanging but (I hope) improving garden. This fourth edition is the last one I will compile. I am grateful to have this last chance to make additions as well as a number of corrections and clarifications. Perhaps in a few years an enterprising new editor will have the

energy to continue the project, since there appears to be a bottomless pit of quotable gems to be mined from Einstein's enormous archives.

For this edition, I added three new sections but deleted most of the front- and backmatter found in the earlier editions in order to keep the book a compact size. Readers who are interested in the "extras" of the earlier editions should consult those volumes for the following: a longer chronology of Einstein's life, a family tree, answers to the most common questions about him, excerpts from the FBI's Einstein file, the famous letter to President Roosevelt warning him about the possibility that Germany is building an atom bomb, Johanna Fantova's journal of conversations with Einstein, Helen Dukas's account of Einstein's last days, and a letter to Sigmund Freud from Why War? as well as the old introductions, which give some background about my involvement with this project. I hope readers will now enjoy "On and to Children," including Einstein's own two sons; "On Race and Prejudice," which deserves its own section since the publication of Fred Jerome and Rodger Taylor's Einstein on Race and Racism has brought new material to light; and just a few verses, limericks, and poems from among the five hundred or so in the archive, all written originally in German. I was able to expand and reorganize the sections covering politics and Jewish themes considerably due to the publication of David Rowe and Robert Schulmann's invaluable and comprehensive book, Einstein on Politics: His Private and Public Thoughts on Nationalism, Zionism, War, Peace, and the Bomb, which documents Einstein's political, social, and humanitarian writings. Also of value have been Jürgen Neffe's biography, Einstein, meticulously translated into English by Shelley Frisch; Fred Jerome's Einstein on Israel and Zionism; and Walter Isaacson's Einstein. In addition, the publication of volumes 10 and 12 of the Collected Papers has provided yet more primary material. Therefore, I was able to add about four hundred more quotations, bringing the total to around sixteen hundred. The new quotations are prefaced with an asterisk.

While continuing to read about Einstein, I discovered that the versions of his translated writings are continuing to multiply. For example, the reprinted essays in Ideas and Opinions and in Nathan and Norden's Einstein on Peace are not always faithfully reproduced from the original publications such as Forum and Century and the New York Times Magazine but were retranslated for these books, for other compilations (such as Cosmic Religion, which seems to take snippets from a variety of sources and paraphrase them), and in many biographies thereafter. Because Ideas and Opinions is often used as a trusted source, it is not surprising that many of us have been confused about what Einstein really said. Perhaps Einstein himself asked that some of his earlier published statements be revised, no longer finding them palatable later in life. It is advisable that scholars, at

least, go to the original sources, in the original language, whenever possible, and mention the dates of publication and alternative sources or versions.

Joseph Routh, who became the president of Magdalen College at Oxford over two centuries ago, when asked what precept could serve as a rule of life to an aspiring young man, warned: "You will find it a very good practice always to verify your references, Sir!" In the early editions of this book, I admittedly didn't always heed this sage advice, not being intimately familiar with the vast Einstein literature and believing the sources I had found were trustworthy enough for a general audience. At the same time, I had also warned readers that the original volume was not in fact a scholarly book in the strictest sense. Still, the gist of the quotations themselves has been accurate, with a few exceptions—not too bad when dealing with about sixteen hundred quotations. I've deleted some unverifiable, questionable ones or placed them in the "Attributed to Einstein" section. This edition therefore supersedes the *quotations and sources of the previous editions*.

Furthermore, readers should be aware that published interviews must be taken with a grain of salt since they are filtered by the interviewer and Einstein did not always have a chance to approve them before publication. The same holds true for recollections, conversations, and memoirs, and for anecdotal compilations such as Anita Ehlers's lighthearted *Liebes Hertz!*. I slightly changed a few of the

translations that appeared in the earlier editions of this book if I felt the newly found ones were more accurate, and I also added more explanatory material in some notes.

If a quotation can be found in the published volumes of *The Collected Papers of Albert Einstein* (still a work in progress), I included the volume and document number as a source. With this information readers can consult these volumes for further context. Other reliable sources are Rowe and Schulmann's reprinted documents in *Einstein on Politics* and those reprinted in Fred Jerome's books. For items yet unpublished, particularly correspondence, I included an archive number when it was available, as a help to scholars who are able to access the database of the Einstein Archives or the Einstein Papers Project.

Readers of the earlier editions may notice that many of the quotations that were in the original lists in the "Attributed to Einstein" section are no longer in that section and can be found, documented, in the body of the book. The sources of some other popular ones are still undiscovered, and I feel that a good number of them are paraphrases or generalizations of Einstein's thoughts. Many others, though, are completely bogus and continue to be used dishonestly by those who want to use Einstein's name to advance their particular causes.

A word about Einstein's sense of humor is also in order, since humor doesn't always translate well from one language to another. Some, but not all, of his more biting remarks may have been said in jest, tongue-in-cheek, or with a twinkle in his eye. Like most of us, he may have also regretted some of his words later. Once you know Einstein better, you'll also better understand his humor. Furthermore, the reader will note that, through the years, Einstein changed his opinion on a number of topics, as many of us do as we age. So when you read a quotation, be aware that's how he felt at the time he said it, and not necessarily forever after. Such contradictions show that Einstein was not always rigid and narrow-minded but open to new ideas and thoughts as the times demanded, while still trying to remain true to his basic humanitarian values. He was more ironbound in his scientific ideas, though.

Einstein continues and no doubt will forever continue to fascinate both scientists and other admirers around the world. Through his avuncular, genial, and self-effacing image, he manages to exude a charisma that sociologist Max Weber described as "a certain quality of an individual personality, by virtue of which he is set apart from ordinary men and treated as endowed with supernatural, superhuman, or at least specifically exceptional powers or qualities." In this book, however, readers will learn once again that Einstein was all too human and that, for the most part, he is still relevant today.

I thank my editor at Princeton University Press, Ingrid Gnerlich; my production editor, Sara Lerner,

for efficiently guiding the manuscript through production; and my eagle-eyed copyeditor, Karen Verde, for their interest and care in helping to prepare this volume for publication. Thanks also go to my former colleagues at Princeton University Press who produced this book and to the many people who, along with their friendly and gracious letters, sent me new quotations and copies of Einstein correspondence I had not seen before. Barbara Wolff of the Einstein Archives in Jerusalem made an exceptional contribution by providing corrections, further sources, and new details that were not familiar to me; she has helped to make this a better book and I'm extremely grateful to her. Osik Moses, an editor at the Einstein Papers Project at Caltech, has been most helpful and was always efficient and quick with her responses, and Diana Buchwald was gracious in giving me access to the archive. As usual, Robert Schulmann provided answers to important questions. Many friends, especially Patrick Lewin, provided encouragement and keen interest in this project. And I again thank Freeman Dyson for his wonderful foreword, which he allowed us to minimally revise in a couple of places. I hope this final edition will serve all readers well.

Claremont, California, January 2010



# A Brief Chronology

- 1879 March 14, Albert Einstein is born in Ulm, Germany.
- 1880 Family moves to Munich.
- 1881 November 18, sister Maja is born.
- 1885 In the fall, enters school and begins violin lessons.
- 1894 Family moves to Italy, but Albert stays in Munich to finish school. He quits school at the end of the year and joins his family in Italy.
- 1895 Enters the Aargau Cantonal School in Aarau, Switzerland.
- 1896 Relinquishes his German citizenship, is graduated from school, and moves to Zurich at the end of October to attend the Swiss Federal Polytechnical Institute (the "Poly"; later the "ETH").
- 1900 Is graduated from the Polytechnical Institute. Announces he plans to marry fellow student Mileva Marić.
- 1901 Becomes a Swiss citizen. Seeks employment while tutoring. Begins work on a doctoral dissertation for the University of Zurich.
- 1902 Probably in January, daughter Lieserl is born out of wedlock to Mileva. June, begins an appointment as Technical Expert at the Patent Office in Bern.
- 1903 January 6, marries Mileva in Bern, where they take up residence. Lieserl may have been given up for adoption or died, for no mention is made of her after September of this year.
- 1904 May 14, son Hans Albert is born in Bern.

- 1905 Einstein's "year of miracles" with respect to his scientific publications.
- 1906 January 15, receives doctorate from the University of Zurich.
- 1908 February, becomes a lecturer at the University of Bern.
- 1909 Is appointed Extraordinary Professor of Physics at the University of Zurich.
- 1910 July 28, second son, Eduard, is born.
- 1911 Goes to Prague to teach for a year.
- 1912 Becomes reacquainted with his divorced cousin Elsa Löwenthal and begins a romantic correspondence with her as his own marriage disintegrates. Accepts appointment as Professor of Theoretical Physics at the Polytechnical Institute (now the ETH) in Zurich.
- 1913 September, sons Hans Albert and Eduard are baptized as Orthodox Christians near Novi Sad, Hungary (later Yugoslavia, now Serbia), their mother's hometown. Accepts a professorship in Berlin, home of cousin Elsa.
- 1914 April, arrives in Berlin to assume his new position. Mileva and the children join him but return to Zurich in July because of Einstein's desire to end the marriage.
- 1916 Publishes "The Origins of the General Theory of Relativity" in *Annalen der Physik*.
- 1917 October 1, begins directorship of the Kaiser Wilhelm Institute of Physics in Berlin.
- 1919 February 14, is finally divorced from Mileva.

  May 29, during a solar eclipse, Sir Arthur Eddington experimentally measures the bending of light and confirms Einstein's predictions; Einstein's fame as a public figure begins. June 2,

- marries Elsa, who has two daughters at home, Ilse (age 22) and Margot (age 20).
- 1920 Expressions of anti-Semitism and anti-relativity theory become noticeable among Germans, yet Einstein remains loyal to Germany. Becomes increasingly involved in nonscientific interests, including pacifism and his brand of Zionism.
- 1921 April and May, makes first trip to the United States. Accompanies Chaim Weizmann on U.S. fund-raising tour on behalf of Hebrew University of Jerusalem. Delivers four lectures on relativity theory at Princeton University.
- 1922 October through December, takes trip to the Far East. November, while in Shanghai, learns that he has won the 1921 Nobel Prize in physics.
- 1923 Visits Palestine and Spain.
- 1925 Travels to South America. In solidarity with Gandhi, signs a manifesto against compulsory military service. Becomes an ardent pacifist.
- 1928 April, Helen Dukas is hired as his secretary and remains with him as secretary and housekeeper for the rest of his life.
- 1930 December, visits New York and Cuba, then stays (until March 1931) at the California Institute of Technology (Caltech), in Pasadena.
- 1931 Visits Oxford in May to deliver the Rhodes Lectures. December, en route to Pasadena again.
- 1932 January–March, at Caltech. Returns to Berlin. December, takes another trip to the United States.
- 1933 January, Nazis come to power in Germany. Gives up German citizenship (remains a Swiss citizen) and does not return to Germany. Instead, from the United States, goes to Belgium with Elsa and sets up temporary residence at Coq sur Mer.

- Takes trips to Oxford, where he delivers the Herbert Spencer Lecture in June, and Switzerland, where he makes his final visit to son Eduard in a psychiatric hospital. Early October, leaves Europe for Princeton, New Jersey, to begin professorship at the Institute for Advanced Study.
- 1936 December 20, Elsa dies after a long battle with heart and kidney disease.
- 1939 August 2, signs famous letter to President Roosevelt on the military implications of atomic energy, which leads to the Manhattan Project.
- 1940 Becomes U.S. citizen.
- 1945 Retires officially from the faculty of the Institute for Advanced Study.
- 1948 August 4, Mileva dies in Zurich.
- 1950 March 18, signs his last will. His literary estate (the archive) is to be transferred to the Hebrew University of Jerusalem at a time determined by his trustees.
- 1952 Is offered the presidency of Israel, which he declines.
- 1955 April 11, writes last signed letter, to Bertrand Russell, agreeing to sign a joint manifesto urging all nations to renounce nuclear weapons. April 13, aneurysm ruptures. April 15, enters Princeton Hospital. April 18, Albert Einstein dies at 1:15 A.M. of a ruptured arteriosclerotic aneurysm of the abdominal aorta.





# On Einstein Himself



A happy man is too satisfied with the present to think too much about the future.

Written at age seventeen (September 18, 1896) for a school essay in French entitled "My Future Plans." *CPAE*, Vol. 1, Doc. 22

Strenuous intellectual work and the study of God's Nature are the angels that will lead me through all the troubles of this life with consolation, strength, and uncompromising rigor.

To Pauline Winteler, mother of Einstein's girlfriend Marie, May (?) 1897. CPAE, Vol. 1, Doc. 34

\*In many a lucid moment I appear to myself as an ostrich who buries his head in the desert sand so as not to perceive a danger. One creates a small world for oneself and . . . one feels miraculously great and important, just like a mole in its self-dug hole.

Ibid.

\*I know this sort of animal personally, from my own experience, as I am one of them myself. Not too much should be expected of them. . . . Today we are sullen, tomorrow high-spirited, after tomorrow cold, then again irritated and half-sick of life—not to mention unfaithfulness, ingratitude, and selfishness.

To friend Julia Niggli, ca. August 6, 1899, after she asked him his opinion about her relationship with an older man. *CPAE*, Vol. 1, Doc. 51

I decided the following about our future: I will look for a position immediately, no matter how modest it is. My scientific goals and my personal vanity will not prevent me from accepting even the most subordinate position.

To future wife Mileva Marić, ca. July 7, 1901, while having difficulty finding his first job. CPAE, Vol. 1, Doc. 114

In living through this "great epoch," it is difficult to reconcile oneself to the fact that one belongs to that mad, degenerate species that boasts of its free will. How I wish that somewhere there existed an island for those who are wise and of good will! In such a place even I should be an ardent patriot!

To Paul Ehrenfest, early December 1914. CPAE, Vol. 8, Doc. 39

Do not feel sorry for me. Despite terrible appearances, my life goes on in full harmony; I am entirely devoted to reflection. I resemble a farsighted man who is charmed by the vast horizon and who is disturbed by the foreground only when an opaque object obstructs his view.

To Helene Savić, September 8, 1916, after separation from his family. In Popović, ed., In Albert's Shadow, 110. CPAE, Vol. 8, Doc. 258

I very rarely think in words at all. A thought comes, and I may try to express it in words afterwards.

From a conversation with psychologist Max Wertheimer in 1916. In Wertheimer, *Productive Thinking* (New York: Harper, 1945), footnote on p. 184

I have come to know the mutability of all human relationships and have learned to insulate myself against both heat and cold so that a temperature balance is fairly well assured.

To Heinrich Zangger, March 10, 1917. CPAE, Vol. 8, Doc. 309

I am by heritage a Jew, by citizenship a Swiss, and by disposition a human being, and *only* a human being, without any special attachment to any state or national entity whatsoever.

To Adolf Kneser, June 7, 1918. CPAE, Vol. 8, Doc. 560

I was originally supposed to become an engineer, but the thought of having to expend my creative energy on things that make practical everyday life even more refined, with a loathsome capital gain as the goal, was unbearable to me.

To Heinrich Zangger, ca. August 1918. CPAE, Vol. 8, Doc. 597

I lack any sentiment of the sort; all I have is a sense of duty toward all people and an attachment to those with whom I have become intimate.

To Heinrich Zangger, June 1, 1919, regarding his lack of attachment to any particular place, as, for example, physicist Max Planck had to Germany. *CPAE*, Vol. 9, Doc. 52

letters at my head because I still haven't answered the old ones.

To Ludwig Hopf, February 2, 1920. CPAE, Vol. 9, Doc. 295

My father's ashes lie in Milan. I buried my mother here [Berlin] only a few days ago. I myself have journeyed to and fro continuously—a stranger everywhere. My children are in Switzerland.... A person like me has as his ideal to be at home anywhere with his near and dear ones.

To Max Born, March 3, 1920. In Born, Born-Einstein Letters, 25. CPAE, Vol. 9, Doc. 337

The teaching faculty in elementary school was liberal and did not make any denominational distinctions. Among the *Gymnasium* teachers there were a few anti-Semites. Among the children, anti-Semitism was alive especially in elementary school. It was based on conspicuous racial characteristics and on impressions left from the lessons on religion. Active attacks and verbal abuse on the way to and from school were frequent but usually not all that serious. They sufficed, however, to establish an acute feeling of alienation already in childhood.

To Paul Nathan, political editor of the *Berliner Tageblatt*, for an article on anti-Semitism, April 3, 1920. *CPAE*, Vol. 9, Doc. 366

I will always fondly recall the hours spent in your home, including the pearls of Persian wisdom with which I became acquainted through your hospitality and your work. As an Oriental by blood, I feel they are especially meaningful to me.

To Friedrich Rosen, German envoy in The Hague, May 1920. Rosen had apparently been posted in Persia at one time and edited a collection of Persian stories. Einstein Archives 9-492

It also pleases me that it is still possible, even today, to be treated as an internationally minded person without being compartmentalized into one of the two big drawers.

To H. A. Lorentz, June 15, 1920. The "two big drawers" at the time were the pro–Central Powers and the pro-Allies. *CPAE*, Vol. 10, Doc. 56

\*Don't be too hard on me. Everyone has to sacrifice at the altar of stupidity from time to time, to please the Deity and the human race. And this I have done thoroughly with my article.

To Max and Hedi Born, September 9, 1920, downplaying criticism for an article he wrote. In Born, *Born-Einstein Letters*, 34. *CPAE*, Vol. 7, Doc. 45

Like the man in the fairytale who turned everything he touched into gold, so with me everything is turned into newspaper clamor.

Ibid. To his friend Paul Ehrenfest he wrote ten years later, on March 21, 1930, "With me, every peep becomes a trumpet solo" (Einstein Archives 10-212).

Personally, I experience the greatest degree of pleasure in having contact with works of art. They furnish me with happy feelings of an intensity that I cannot derive from other sources.

1920. Quoted by Moszkowski, *Conversations with Einstein*, 184. Here, according to the context, Einstein refers only to literature.

\*I do not care to speak about my work. The sculptor, the artists, the musician, the scientist work because they love their work. Fame and honor are secondary. My work is my life, and when I find the truth I proclaim it. . . . Opposition does not affect my work.

Quoted in New York Call, May 31, 1921, 2. See also Illy, Albert Meets America, 312

To be called to account publicly for what others have said in your name, when you cannot defend yourself, is a sad situation indeed.

From "Einstein and the Interviewers," August 1921. Einstein Archives 21-047

If my theory of relativity is proven successful, Germany will claim me as a German and France will declare that I am a citizen of the world. Should my theory prove untrue, France will say that I am a German and Germany will declare that I am a Jew.

From an address to the French Philosophical Society at the Sorbonne, April 6, 1922. See also French press clipping,

April 7, 1922, Einstein Archives 36-378; and *Berliner Tage-blatt*, April 8, 1922. Einstein Archives 79-535

When a blind beetle crawls over the surface of a curved branch, it doesn't notice that the track it has covered is indeed curved. I was lucky enough to notice what the beetle didn't notice.

In answer to his son Eduard's question about why he is so famous, 1922. Quoted in Flückiger, *Albert Einstein in Bern*, and Grüning, *Ein Haus für Albert Einstein*, 498

Now I am sitting peacefully in Holland after being told that certain people in Germany have it in for me as a "Jewish saint." In Stuttgart there was even a poster in which I appeared in first place among the richest Jews.

To sons Hans Albert and Eduard, November 24, 1923. Einstein Archives 75-627

Of all the communities available to us, there is not one I would want to devote myself to except for the society of the true searchers, which has very few living members at any one time.

To Max and Hedwig Born, April 29, 1924. In Born, *Born-Einstein Letters*, 79. Einstein Archives 8-176

[I] must seek in the stars that which was denied [to me] on Earth.

To his secretary Betty Neumann, 1924, with whom he had fallen in love while married to Elsa, upon ending

his relationship with her. She was the niece of his friend Hans Muehsam. See Pais, *Subtle Is the Lord*, 320; and Fölsing, *Albert Einstein*, 548

Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.

In answer to the question, "Do you trust more to your imagination than to your knowledge?" From interview with G. S. Viereck, "What Life Means to Einstein," *Saturday Evening Post*, October 26, 1929; reprinted in Viereck, *Glimpses of the Great*, 447

My own career was undoubtedly determined not by my own will, but by various factors over which I have no control, primarily those mysterious glands in which nature prepares the very essence of life.

In a discussion on free will and determinism. Ibid. Reprinted in Viereck, Glimpses of the Great, 442

To punish me for my contempt of authority, Fate has made me an authority myself.

Aphorism for a friend, September 18, 1930. Quoted in Hoffmann, *Albert Einstein: Creator and Rebel*, 24. Einstein Archives 36-598

#### I am an artist's model.

As recalled and noted by Herbert Samuel, who asked him his occupation, reflecting Einstein's feeling that he was constantly posing for sculptures and paintings, October 31, 1930. Einstein Archives 21-006. The photographer Philippe

between the popular assessment of my powers and achievements and the reality is simply grotesque.

From "Impressions of the U.S.A.," ca. 1931, reprinted in Rowe and Schulmann, *Einstein on Politics*, 242–246. Einstein Archives 28-168

Although I try to be universal in thought, I am European by instinct and inclination.

Quoted in *Daily Express* (London), September 11, 1933. Also in Holton, *Advancement of Science*, 126

People flatter me as long as I'm of use to them. But when I try to serve goals with which they are in disagreement, they immediately turn to abuse and calumny in defense of their interests.

To an unidentified pacifist, 1932. Einstein Archives 28-191

I suffered at the hands of my teachers a similar treatment; they disliked me for my independence and passed me over when they wanted assistants. (I must admit, though, that I was somewhat less of a model student than you.)

To a young girl, Irene Freuder, November 20, 1932. Reprinted as "Education and Educators," in *Ideas and Opinions*, 56. Einstein Archives 28-221

My life is a simple thing that would interest no one. It is a known fact that I was born, and that is all that is necessary.

To Princeton High School reporter Henry Russo, quoted in *The Tower*, April 13, 1935

As a boy of twelve years making my acquaintance with elementary mathematics, I was thrilled in seeing that it was possible to find out truth by reasoning alone, without the help of any outside experience. . . . I became more and more convinced that even nature could be understood as a relatively simple mathematical structure.

Ibid.

Arrows of hate have been aimed at me too, but they have never hit me, because somehow they belonged to another world with which I have no connection whatsoever.

From a statement written for Georges Schreiber's *Portraits* and *Self-Portraits* (Boston: Houghton Mifflin, 1936). Reprinted in *Out of My Later Years*, 13. Einstein Archives 28-332

I have settled down splendidly here: I hibernate like a bear in its cave, and really feel more at home than ever before in all my varied existence. This bearishness has been accentuated still further because of the death of my mate, who was more attached to human beings than I.

To Max Born, early 1937, after the death of Einstein's wife, Elsa. In Born, *Born-Einstein Letters*, 125. Einstein Archives 8-199 I wouldn't want to live if I did not have my work. . . . In any case, it's good that I'm already old and personally don't have to count on a prolonged future.

To close friend Michele Besso, October 10, 1938, reflecting on Hitler's rise to power. Einstein Archives 7-376

I firmly believe that love [of a subject or hobby] is a better teacher than a sense of duty—at least for me.

In draft of a letter to Philipp Frank, 1940. Einstein Archives 71-191

\*I have never given my name for commercial use even in cases where no misleading of the public was involved as it would be in your case. I, therefore, forbid you to use my name in any way.

To Marvin Ruebush, who had asked Einstein for permission to use his name in promoting a cure for stomach aches, May 22, 1942. Einstein Archives 56-066

Why is it that nobody understands me, yet everybody likes me?

From an interview, New York Times, March 12, 1944

I do not like to state an opinion on a matter unless I know the precise facts.

From an interview with Richard J. Lewis, *New York Times*, August 12, 1945, 29:3, on declining to comment on Germany's progress on the atom bomb

I never think of the future. It comes soon enough.

Aphorism, 1945–46. According to the Oxford Dictionary of Humorous Quotations (2d ed., 2001), this quotation came from an interview on the ship *Belgenland* in December 1930; perhaps it was recalled later and inserted into the archives under the later date. Einstein Archives 36-570

The development of this thought world (*Gedankenwelt*) is in a certain sense a continuous flight from "wonder." A wonder of such nature I experienced as a child of four or five years, when my father showed me a compass.

Written in 1946 for "Autobiographical Notes," 9

My intuition was not strong enough in the field of mathematics in order to differentiate clearly the fundamentally important . . . from the rest of the more or less dispensable erudition. Beyond this, however, my interest in the knowledge of nature was also unqualifiedly stronger. . . . In this field I soon learned to scent out that which was able to lead to fundamentals and to turn aside . . . from the multitude of things which clutter up the mind and divert it from the essential.

Ibid., 15-17

The essential in the being of a man of my type lies precisely in *what* he thinks and *how* he thinks, not in what he does or suffers.

Ibid., 33

There have already been published by the bucketsful such brazen lies and utter fictions about me that I would long since have gone to my grave if I had allowed myself to pay attention to them.

To the writer Max Brod, February 22, 1949. Einstein Archives 34-066.1

\*I lack influence [at the Institute for Advanced Study], as I am generally regarded as a sort of petrified object, rendered blind and deaf by the years. I find this role not too distasteful, as it corresponds fairly well with my temperament.

To Max and Hedi Born, April 12, 1949. In Born, *Born-Einstein Letters*, 178–179. (Similar to "My fame begins outside of Princeton. My word counts for little in Fine Hall," as quoted by Infeld in *Quest*, 302.) Einstein Archives 8-223

\*I simply enjoy giving more than receiving in every respect, to not take myself nor the doings of the masses seriously, am not ashamed of my weaknesses and vices, and naturally take things as they come with equanimity and humor. Many people are like this, and I really cannot understand why I have been made into a kind of idol.

Ibid., in reply to Max Born's question on Einstein's attitude toward a simple life

My scientific work is motivated by an irresistible longing to understand the secrets of nature and by no other feelings. My love for justice and the striving I was supposed to be named Abraham after my grandfather. But that was too Jewish for my parents, so they made use of the "A" and named me Albert.

Ibid., December 5, 1953

All manner of fable is being attached to my personality, and there is no end to the number of ingeniously devised tales. All the more do I appreciate and respect what is truly sincere.

To Queen Elisabeth of Belgium, March 28, 1954. Einstein Archives 32-410

Today Mr. Berks has shown me the bust he made of me. I admire the bust highly as a portrait and not less as a work of art and as a characterization of mental personality.

From a signed statement written in English, April 15, 1954. Robert Berks is the sculptor who created the statue of Einstein in front of the National Academy of Science in Washington, D.C. The bust was used as a model for the statue. The bust itself, donated by the sculptor, was placed in front of Borough Hall, Princeton, New Jersey, in April 2005. (Statement, of which he gave me a copy, is in possession of Mr. Berks.)

It is true that my parents were worried because I began to speak fairly late, so that they even consulted a doctor. I can't say how old I was—but surely not less than three.

To Sybille Blinoff, May 21, 1954. Einstein Archives 59-261. In her biography of Einstein, Einstein's sister, Maja, put his age at two and a half; see *CPAE*, Vol. 1, lvii

I'm not the kind of snob or exhibitionist that you take me to be and furthermore have nothing of value to say of immediate concern, as you seem to assume.

In reply to a letter, May 27, 1954, asking Einstein to send a message to a new museum in Chile, to be put on display for others to admire. Einstein Archives 60-624

It is quite curious, even abnormal, that, with your superficial knowledge about the subject, you are so confident in your judgment. I regret that I cannot spare the time to occupy myself with dilettantes.

To dentist G. Lebau, who claimed he had a better theory of relativity, July 10, 1954. The dentist returned Einstein's letter with a note written at the bottom: "I am thirty years old; it takes time to learn humility." Einstein Archives 60-226

I never read what anyone writes about me—they are mostly lies from the newspapers that are always repeated.... The only exception has been the Swiss man, [Carl] Seelig; he is very nice and did a good job. I didn't read his book, either, but Dukas read some parts of it to me.

Quoted by Fantova, "Conversations with Einstein," September 13, 1954

If I would be a young man again and had to decide how to make my living, I would not try to become a scientist or scholar or teacher. I would rather choose to be a plumber or a peddler, in the hope of finding that modest degree of independence still available under present circumstances.

To the editor, The Reporter 11, no. 9 (November 18, 1954). See Rowe and Schulmann, Einstein on Politics, 485–486. Said in response to the McCarthy-era witch hunt of intellectuals. He felt that science at its best should be a hobby and that one should make a living at something else (see Straus, "Reminiscences," in Holton and Elkana, Albert Einstein: Historical and Cultural Perspectives, 421). A plumber, Stanley Murray, replied to Einstein on November 11: "Since my ambition has always been to be a scholar and yours seems to be a plumber, I suggest that as a team we would be tremendously successful. We can then be possessed of both knowledge and independence" (Rosenkranz, Einstein Scrapbook, 82-83). At other times, Einstein allegedly also claimed that he would choose to be a musician, and suggested the job of lighthouse keeper to young scientists in a speech in the Royal Albert Hall in London in 1933 (Nathan and Norden, Einstein on Peace, 238).

\*In the present circumstances, the only profession I would choose would be one where earning a living had nothing to do with the search for knowledge.

To Max Born, January 17, 1955. See Born, *Born-Einstein Letters*, 227. Einstein Archives 8-246

Only in mathematics and physics was I, through self-study, far beyond the school curriculum, and also with regard to philosophy as it was taught in the school curriculum.

To Henry Kollin, February 1955. Quoted in Hoffmann, *Albert Einstein: Creator and Rebel*, 20. Einstein Archives 60-046

The only way to escape the corruptible effect of praise is to go on working.

Quoted by Lincoln Barnett, "On His Centennial, the Spirit of Einstein Abides in Princeton," Smithsonian, February 1979, 74

God gave me the stubbornness of a mule and a fairly keen scent.

As recalled by Ernst Straus. Quoted in Seelig, *Helle Zeit, dunkle Zeit*, 72

The ordinary adult never gives a thought to spacetime problems. . . . I, on the contrary, developed so slowly that I did not begin to wonder about space and time until I was an adult. I then delved more deeply into the problem than any other adult or child would have done.

As recalled by Nobel laureate James Franck, on Einstein's belief that it is usually children, not adults, who reflect on space-time problems. Quoted in Seelig, *Albert Einstein und die Schweiz*, 73

When I was young, all I wanted and expected from life was to sit quietly in some corner doing my work

without the public paying attention to me. And now see what has become of me.

Quoted in Hoffmann, Albert Einstein: Creator and Rebel, 4

When I examine myself and my methods of thought, I come close to the conclusion that the gift of imagination has meant more to me than my talent for absorbing absolute knowledge.

Similar to "Imagination is more important than knowledge" (1929), quoted above. Recalled by a friend on the one hundredth anniversary of Einstein's birth, celebrated February 18, 1979. Quoted in Ryan, Einstein and the Humanities, 125

I have never obtained any ethical values from my scientific work.

As recalled by Manfred Clynes. Quoted in Michelmore, Einstein: Profile of the Man, 251

Many things which go under my name are badly translated from the German or are invented by other people.

To George Seldes, compiler of *The Great Quotations* (1960), cited in Kantha, *An Einstein Dictionary*, 175

I hate my pictures. Look at my face. If it weren't for this [his mustache], I'd look like a woman!

Said to photographer Alan Richards sometime during the last ten years of his life. Quoted by Richards, "Reminiscences," in *Einstein as I Knew Him* (unnumbered pages)

## On and to His Family



### ABOUT OR TO HIS FIRST WIFE, MILEVA MARIĆ

According to Einstein, though his marriage to Mileva, a Serbian woman, lasted for seventeen years, he never really knew her. He recalled that he had married her primarily "from a sense of duty," possibly because she had given birth to their illegitimate child. "I had, with an inner resistance, embarked on something that simply exceeded my strength." They had met at the Swiss Federal Polytechnical Institute, where both were physics students; he was eighteen and she was twenty-two. At the time of their marriage about five years later, he was not aware that mental illness was hereditary on Mileva's mother's side of the family. Mileva herself was often depressed and her sister, Zorka, was schizophrenic. Still, she was a warm and caring woman and highly intelligent, and had much to cope with throughout life. Because of her inability to accept her pending divorce, Einstein's often insensitive treatment of her, and the decision not to bring their illegitimate daughter, Lieserl, to live with them, Mileva became bitter, sometimes causing difficulties in Einstein's relationship with his two sons during their separation. The many letters he wrote to them, especially to Hans Albert, show that he tried to remain close to them during their childhood and that he regarded them warmly and with care and concern. He also eventually conceded that Mileva was a good mother. (See CPAE, Vol. 8, for these letters as well as letters to Mileva in which the couple tries to deal with its financial and parenting difficulties after the separation. See also Popović, ed., In Albert's Shadow.)

Still, these tragic circumstances of their separation, according to Einstein, left their mark on him into his old age and may have amplified his deep involvement in activities of an impersonal nature. See letters to his biographer Carl Seelig, March 26 and May 5, 1952; Einstein Archives 39-016 and 39-020

Mama threw herself on the bed, buried her head in the pillow, and wept like a child. After regaining her composure, she immediately shifted to a desperate attack: "You're ruining your future and destroying your opportunities." "No decent family would want her." "If she becomes pregnant, you'll be in a real mess." With this outburst, which was preceded by many others, I finally lost my patience.

To Mileva, July 29, 1900, after telling his mother that he and Mileva planned to marry; they did not marry until January 6, 1903. *The Love Letters*, 19; *CPAE*, Vol. 8, Doc. 68

I long terribly for a letter from my beloved witch. I find it hard to believe that we will be separated for so much longer—only now do I see how much in love with you I am! Pamper yourself, so you will become a radiant little sweetheart and as wild as a street urchin!

To Mileva, August 1, 1900. *The Love Letters*, 21; *CPAE*, Vol. 1, Doc. 69

When you're not with me, I feel as though I'm not complete. When I'm sitting, I want to go away; when

I go away, I'd rather be home; when I'm talking with people, I'd rather be studying; when I study, I can't sit still and concentrate; and when I go to sleep, I'm not satisfied with the way the day has passed.

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To Mileva, August 6, 1900. The Love Letters, 23–24; CPAE, Vol. 1, Doc. 70
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How was I ever able to live alone, my little everything? Without you I have no self-confidence, no passion for work, and no enjoyment of life—in short, without you, my life is a void.

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To Mileva, ca. August 14, 1900. The Love Letters, 26; CPAE, Vol. 1, Doc. 72
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My parents are very concerned about my love for you.... They cry for me almost as if I had already died. Again and again they complain that I brought misfortune on myself by my devotion to you.

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To Mileva, August–September 1900. The Love Letters, 29; CPAE, Vol. 1, Doc. 74
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Without the thought of you, I would no longer want to live among this sorry herd of humans. But having you makes me proud, and the thought of you makes me happy. I will be doubly happy when I can press you to my heart once again and see those loving eyes shine for me alone, and when I can kiss that sweet mouth that trembles for me only.

Ibid.

this. I'm absolutely my own master . . . as well as my own wife.

To Elsa, before December 2, 1913. CPAE, Vol. 5, Doc. 488

[My wife, Mileva] is an unfriendly, humorless creature who gets nothing out of life and who, by her mere presence, extinguishes other people's joy of living.

To Elsa, after December 2, 1913. CPAE, Vol. 5, Doc. 489

My wife whines incessantly to me about Berlin and her fear of the relatives.... My mother is goodnatured, but she is a really fiendish mother-in-law. When she stays with us, the air is full of dynamite.... But both are to be blamed for their miserable relationship.... No wonder that my scientific life thrives under these circumstances: it lifts me impersonally from the vale of tears into a more peaceful atmosphere.

To Elsa, after December 21, 1913. CPAE, Vol. 5, Doc. 497

\*He had kind of a relationship with my wife, which no one can hold against them.

To Heinrich Zangger, June 27, 1914. Einstein presumed Mileva had an affair with Vladimir Varićak, a professor of mathematics at the University of Zagreb, who made two important discoveries in the theory of relativity, which were cited by Wolfgang Pauli in his review paper on relativity. *CPAE*, Vol. 8, Doc. 34a, embedded in Vol. 10

(A) You will see to it that (1) my clothes and laundry are kept in good order; (2) I will be served three meals regularly in my room; (3) my bedroom and study are kept tidy, and especially that my desk is left for my use only. (B) You will relinquish all personal relations with me insofar as they are not completely necessary for social reasons. Particularly, you will forgo my (1) staying at home with you; (2) going out or traveling with you. (C) You will obey the following points in your relations with me: (1) you will not expect any tenderness from me, nor will you offer any suggestions to me; (2) you will stop talking to me about something if I request it; (3) you will leave my bedroom or study without any backtalk if I request it. (D) You will undertake not to belittle me in front of our children, either through words or behavior.

Memorandum to Mileva, ca. July 18, 1914, listing the conditions under which he would agree to continue to live with her in Berlin. At first she accepted the conditions, but then left Berlin with the children at the end of July. *CPAE*, Vol. 8, Doc. 22

I don't want to lose the children, and I don't want them to lose me.... After everything that has happened, a friendly relationship with you is out of the question. We shall have a considerate and business-like relationship. All personal things must be kept to a minimum.... I don't expect I'll ask you for a divorce but only want you to stay in Switzerland with

the children ... and send me news of my precious boys every two weeks. ... In return, I assure you of proper comportment on my part, such as I would exercise toward any unrelated woman.

To Mileva, ca. July 18, 1914, on his offer to continue their marriage after his move to Berlin, to which in the end she did not agree. *CPAE*, Vol. 8, Doc. 23

I came to realize that living with the children is no blessing if the wife stands in the way.

To Elsa, July 26, 1914. CPAE, Vol. 8, Doc. 26

I may see my children only on neutral ground, not in our [future] home. This is justified because it is not right to have the children see their father with a woman other than their own mother.

To Elsa, after July 26, 1914. CPAE, Vol. 8, Doc. 27

How much I look forward to the quiet evenings we'll be able to spend chatting alone, and to all the peaceful shared experiences still ahead of us! Now, after all my deliberations and work I'll find a precious little wife at home who receives me with cheer and contentment. . . . It wasn't her [Mileva's] ugliness, but her obstinacy, inflexibility, stubbornness, and insensitivity that prevented harmony between us.

To Elsa, July 30, 1914. CPAE, Vol. 8, Doc. 30

There are reasons why I could not endure being with this woman any longer, despite the tender love that ties me to the children.

To Heinrich Zangger, November 26, 1915. *CPAE*, Vol. 8, Doc. 152

You have no idea of the natural craftiness of such a woman. I would have been physically and mentally broken if I had not finally found the strength to keep her at arm's length and out of sight and earshot.

To Michele Besso, July 14, 1916. CPAE, Vol. 8, Doc. 233

She leads a worry-free life, has her two precious boys with her, lives in a fabulous neighborhood, does what she likes with her time, and innocently stands by as the guiltless party.

To Michele Besso, July 21, 1916. CPAE, Vol. 8, Doc. 238

The only thing she is missing is someone to dominate her. . . . What man would tolerate something so palpably smelly being stuck up his nose all his life, for no purpose at all, with the secondary obligation of also putting on a friendly face?

Ibid.

From now on I will no longer bother her about a divorce. The accompanying battle with my relatives

has taken place. I have learned to withstand the tears.

To Michele Besso, September 6, 1916. Einstein's relatives did not approve of his leaving his marriage in limbo, feeling it would compromise young Ilse's (Elsa's elder daughter's) eligibility for marriage. The divorce finally did take place in February 1919 in Switzerland. Einstein, as the guilty party, was ordered not to marry for the next two years; but, despite the ban, he married Elsa just two and a half months later since the prohibition did not apply under German law. *CPAE*, Vol. 8, Doc. 254; Fölsing, *Albert Einstein*, 425, 427

Separation from Mileva was a matter of life and death for me. . . . Thus I deprive myself of my boys, whom I still love tenderly.

To Helene Savić, September 8, 1916. *CPAE*, Vol. 8, Doc. 258

I believe that Mitsa [Mileva] sometimes suffers from too great a reserve. Her parents and her sister . . . did not even know her address. In this respect, dear Helene, you could be of great use to her, helping her surmount her moments of discouragement. I am deeply grateful for everything you have done for Mitsa and especially for the children.

Ibid.

I've been so preoccupied with what would happen in the event of my death that I'm surprised to find myself still alive. I am writing so late because I have misgivings about our affair. I have a feeling that it will not be good for us, nor for the others, if we form a closer attachment.

To Elsa, May 21, 1912. CPAE, Vol. 5, Doc. 399

I now have someone about whom I can think with unrestrained pleasure and for whom I can live. . . . We will have each other, something we have missed so terribly, and will give each other the gift of stability and an optimistic view of the world.

To Elsa, October 10, 1913. CPAE, Vol. 5, Doc. 476

If you were to recite for me the most beautiful poem... my pleasure would not even approach the pleasure I felt when I received the mushrooms and goose cracklings you prepared for me; ... you will surely not despise the domestic side of me that is revealed by this disclosure.

To Elsa, November 7, 1913. CPAE, Vol. 5, Doc. 482

I really delight in my local relatives, especially in a cousin of my age, with whom I am linked by an old friendship. It is mostly because of this that I am accustoming myself very well to the large city [Berlin], which is otherwise loathsome to me.

To Paul Ehrenfest, ca. April 10, 1914, on his adjustment to life in Berlin. *CPAE*, Vol. 8, Doc. 2

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\*She [Elsa] was the main reason I came to Berlin.

To Heinrich Zangger, June 27, 1915. CPAE, Vol. 8, Doc. 16a, embedded in Vol. 10

\*I decided on the formality of marriage with my cousin [Elsa] after all, because her adult daughters would otherwise be seriously harmed. It doesn't signify any injury either to me or my boys, but is my duty.... Nothing in my life changes by it. Why should the original sin be even harder on these poor daughters of Eve?

To Heinrich Zangger, March 1, 1916. The Einsteins felt that Margot and Ilse would have difficulty finding marriage partners if their mother was carrying on an affair. Yet in a letter to Michele Besso on December 5, he once again claimed, "I abandoned once and for all the idea of remarrying." The marriage in fact took place three years later. *CPAE*, Vol. 8, Docs. 196a, and 283a, respectively, both embedded in Vol. 10

I would take only one of the women with me, either Elsa or Ilse. The latter is more suitable because she is healthier and more practical.

To Fritz Haber, October 6, 1920, on taking a traveling companion on a lecture trip to Norway. Einstein Archives 12-325. He neglected to mention that he had also been infatuated with Ilse, who was Elsa's daughter, before Elsa's and his marriage (see Ilse's letter to Georg Nicolai, May 22, 1918, CPAE, Vol. 8, Doc. 545).

#### ABOUT AND TO HIS CHILDREN

With Mileva, Einstein had two sons, Hans Albert and Eduard, and a daughter, referred to as "Lieserl"; by his marriage to Elsa, he had two stepdaughters, Ilse and Margot. Lieserl was born in January 1902 before Einstein and Mileva were married, and she may have been given up for adoption or was raised by friends. She may also have died from the effects of scarlet fever when she was a toddler; no mention is made of her after September 1903, and Einstein apparently never saw her. See CPAE, Vol. 5, and The Love Letters. There is still speculation as to the real fate of Lieserl, who may have survived the scarlet fever and never knew her origins, or suffered some other yet unknown fate. Only Hans Albert had children. Eduard developed schizophrenia at the age of twenty, though up to that time he had been a somewhat fragile but essentially healthy young man pursuing a medical education. Eduard remained in Switzerland all of his life; Einstein told his biographer Carl Seelig that he rarely wrote to Eduard after leaving Europe for reasons he could not analyze himself. Einstein Archives 39-060. See also the section "On and to Children" for letters to his sons when they were children.

I'm very sorry about what has befallen Lieserl. It's so easy to suffer lasting effects from scarlet fever. If this will only pass. As what is the child registered? We must take precautions that problems don't arise for her later.

This somewhat cryptic (to the reader) letter was sent to Mileva ca. September 19, 1903. Registering a child may

indicate the parents' intention of giving it up for adoption. They may have considered Lieserl's illegitimacy a threat to Einstein's provisional federal appointment at the Swiss Patent Office. See *CPAE*, Vol. 5, Doc. 13, n. 4

At the time we [he and Mileva] were separating from each other, the thought of leaving the children stabbed me like a dagger every morning when I awoke, but I have never regretted the step in spite of it.

To Heinrich Zangger, November 26, 1915. CPAE, Vol. 8, Doc. 152

Albert is now gradually entering the age at which I can mean very much to him.... My influence will be limited to the intellectual and esthetic. I want to teach him mainly to think, judge, and appreciate things objectively. For this I need several weeks a year—a few days would only be a short thrill with no deeper value.

To Mileva, who was afraid that her own relationship with Hans Albert would suffer if he had too much contact with his father, December 1, 1915. *CPAE*, Vol. 8, Doc. 159

My compliments on the good condition of our boys. They are in such excellent physical and emotional shape that I could not wish for more. And I know this is for the most part due to the proper upbringing you are providing. . . . They came to meet me spontaneously and sweetly.

To Mileva during his visit to Zurich, April 8, 1916. CPAE, Vol. 8, Doc. 211

\*My relations with the boys have frozen up completely again. Following an exceedingly nice Easter excursion, the subsequent days in Zurich brought on a complete chilling in a way that is not quite explicable to me. It's better if I keep my distance from them; I have to content myself with the knowledge that they are developing well. How much better off I am than countless others who have lost their children in the War!

To Heinrich Zangger, July 11, 1916. Zangger was a close friend of Einstein's who kept an eye on his boys. Hans Albert lived with him occasionally when Mileva was ill. *CPAE*, Vol. 8, Doc. 232, embedded in Vol. 10

Is [Hans] Albert with you yet? I miss him often. He is already a person with a mind of his own whom one can talk to, and so thoroughly sound in an honest way. He rarely writes but I understand it's not his sort of thing. . . . It's good he did not grow up in the big city with its superficiality.

To Heinrich Zangger, December 24, 1919. CPAE, Vol. 9, Doc. 233

Maybe I can muster enough foreign money to be able to let them [Mileva and the children] stay in Zurich. This may have advantages for my children's life. Although I saw him only for a short period, he was as close to me as if he had grown up near me.

To Hans Albert and wife Frieda, January 7, 1939, after the sudden death of six-year-old Klaus, their son, probably of diphtheria. See Roboz Einstein, *Hans Albert Einstein*, 34

It is a thousand pities for the boy that he must pass his life without the hope of a normal existence. Since the insulin injections have proved unsuccessful, I have no further hopes from the medical side. . . . I think it is better on the whole to let Nature run its course.

To Michele Besso, November 11, 1940, about son Eduard. Einstein Archives 7-378

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.

To Carl Seelig, January 4, 1954, stating why he was not in touch with Eduard. In his will, Einstein left a larger amount of money to Eduard than to Hans Albert. Einstein Archives 39-059

It is a joy for me to have a son who has inherited the chief trait of my personality: the ability to rise above mere existence by sacrificing oneself through the years for an impersonal goal. This is the best, indeed the only way in which we can make ourselves inde-

pendent from personal fate and from other human beings.

To Hans Albert, May 11, 1954. Einstein Archives 75-918

Honesty compels me to admit that Frieda reminded me of your 50th birthday.

Ibid.

When Margot speaks, you see flowers growing.

Commenting on his stepdaughter Margot's love of nature. Quoted by friend Frieda Bucky in "You Have to Ask Forgiveness," *Jewish Quarterly* 15, no. 4 (Winter 1967–68), 33

### ABOUT HIS SISTER, MAJA, AND MOTHER, PAULINE

Yes, but where are its wheels?

Two-and-a-half-year-old Albert, after the birth of Maja in 1881, upon being told he would now have something new to play with. In "Biographical Sketch," by Maja Winteler-Einstein, CPAE, Vol. 1, lvii

My mother and sister seem somewhat petty and philistine to me, despite the sympathy I feel for them. It is interesting how life gradually changes us in the very subtleties of our soul, so that even the closest of family ties dwindle into habitual friend-ship. Deep inside we no longer understand one another and are incapable of empathizing with the other, or know what emotions move the other.

To Mileva Marić, early August 1899, at age twenty. *The Love Letters*, 9; *CPAE*, Vol. 1, Doc. 50

My poor mother arrived here on Sunday.... Now she is lying in my study and suffering terribly, physically and mentally.... It seems that her torments will last a long time yet; she still looks good, but mentally she has suffered very much under the morphine.

To Heinrich Zangger, January 3, 1920. CPAE, Vol. 9, Doc. 242

My mother died a week ago today in terrible agony. We are all completely exhausted. One feels in one's bones the significance of blood ties.

To Heinrich Zangger, February 27, 1920. *CPAE*, Vol. 9, Doc. 332; Einstein Archives 39-732

I know what it means to see one's mother suffer the agony of death and not be able to help. There is no consolation. All of us have this heavy burden to bear, for it is inseparably bound up with life.

To Hedwig Born, June 18, 1920, after the death of her mother. In Born, *Born-Einstein Letters*, 28. *CPAE*, Vol. 10, Doc. 59

# On Aging



own consciousness is no longer as brightly lit as it once was. But then, twilight with its more subdued colors has its charms as well.

To Gertrud Warschauer, April 4, 1952. Einstein Archives 39-515

I [have] always loved solitude, a trait that tends to increase with age.

To E. Marangoni, October 1, 1952. Einstein Archives 60-406

If younger people were not taking care of me, I would surely try to be institutionalized, so that I would not have to become so concerned about the decline of my physical and mental powers, which after all is unpreventable in the natural course of things.

To W. Lebach, May 12, 1953. Einstein Archives 60-221

I feel like an egg, of which only the shell remains—at 75 years old, one can't expect anything else. One should prepare a person for his death.

Quoted by Fantova, "Conversations with Einstein," January 1, 1954

In one's youth every person and every event appear to be unique. With age, one becomes much more aware that similar events recur. Later on, one

is less often delighted or surprised, but also less disappointed.

To Queen Elisabeth of Belgium, January 3, 1954. Einstein Archives 32-408

I believe that older people who have scarcely anything to lose ought to be willing to speak out on behalf of those who are young and who are subject to much greater restraint.

To Queen Elisabeth of Belgium, March 28, 1954. Einstein Archives 32-411

I am feeling my age greatly. I'm no longer so eager to work and always have to lie down after a meal. I enjoy living, but I would not mind if it all suddenly ended.

Quoted by Fantova, "Conversations with Einstein," April 27, 1954

I no longer have the strong pains I had earlier, but I feel very weakened, as can be expected of such an old geezer.

Ibid., May 29, 1954

Today [due to illness] I stayed in bed and received guests like an old lady of the eighteenth century. This was fashionable in Paris at that time. But I'm not a woman, and this isn't the eighteenth century!

Ibid., June 11, 1954

Ibid., January 9, 1955

Even [old] age has very beautiful moments.

To Margot Einstein. Quoted in Sayen, Einstein in America, 298



## On America and Americans

See Rowe and Schulmann, Einstein on Politics, 111-112, for an account of the fiasco

Even if Americans are less scholarly than Germans, they do have more enthusiasm and energy, causing a wider dissemination of new ideas among the people.

Quoted in the New York Times, July 12, 1921

A firm approach is indispensable everywhere in America; otherwise one receives no payment and little esteem.

To Maurice Solovine, January 14, 1922. Published in Letters to Solovine, 49. Einstein Archives 21-157

Never yet have I experienced from the fair sex such energetic rejection of my advances; or if I have, never from so many at once.

Part of a reply to the Women Patriot Corporation, via the Associated Press, December 1932. According to Rowe and Schulmann, Einstein on Politics, 261–262, the right-wing group, under the leadership of a Mrs. Frothingham, had protested Einstein's American visit to the State Department, arguing that he was the ringleader of an anarchocommunist plot, and that the theory of relativity was subversive and designed to promote lawlessness and shatter Church and State, Einstein Archives 28-213

\*But are they not quite right, these watchful citizenesses? Why should one open one's doors to a person who devours hardboiled capitalists with as much appetite and gusto as the Cretan Minotaur in days gone by devoured luscious Greek maidens, and on top of that is low-down enough to reject every sort of war, except the unavoidable war with one's own wife?

Ibid., 262

In America, more than anywhere else, the individual is lost in the achievements of the many.

From an interview with G. S. Viereck, "What Life Means to Einstein," *Saturday Evening Post*, October 26, 1929; reprinted in Viereck, *Glimpses of the Great*, 438

Americans undoubtedly owe much to the Melting Pot. It is possible that this mixture of races makes their nationalism less objectionable than the nationalism of Europe. . . . It may be due to the fact that [Americans] do not suffer from the heritage of hatred or fear, which poisons the relations of the nations of Europe.

Ibid., 451

\*Here, everyone stands up proudly and jealously for his civil rights. Everyone, irrespective of birth, has the opportunity, not merely on paper but in actual practice, to develop his energies freely for the benefit of the human community as a whole. . . . Individual freedom provides a better basis for productive labor than any form of tyranny.

From a shipside broadcast to the American people on arrival in New York, December 11, 1930. See Rowe and Schulmann, *Einstein on Politics*, 238–239, for full text. Einstein Archives 36-306

\*I salute you and the soil of your country. I eagerly look forward to renewing old friendships and to broadening my understanding in the light of what I shall see and learn while among you.

Ibid.

I feel that you are justified in looking into the future with true assurance, because you have a mode of living in which one finds the joy of life and the joy of work harmoniously combined. Added to this is the spirit of ambition which pervades your very being, and seems to make the day's work like a happy child at play.

From a New Year's Day greeting, in the *New York Times*, January 1, 1931. Quoted in *Stevenson's Book of Quotations: Classical and Modern*. Einstein Readex 324 (not in archive database)

Here in Pasadena it is like paradise. . . . Always sunshine and fresh air, gardens with palm and pepper trees, and friendly people who smile at one and ask for autographs.

To the Lebach family during the days before smog, January 16, 1931, on the city in which the California Institute of Technology is located. Einstein Archives 47-373

[America], this land of contrasts and surprises, which leaves one filled alternately with admiration and incredulity. One feels more attached to the Old Europe, with its heartaches and hardships, and is glad to return there.

To Queen Elisabeth of Belgium, February 9, 1931, revealing a touch of homesickness during his three-month stay in America. Einstein Archives 32-349

The smile on the faces of the people . . . is symbolic of one of the greatest assets of the American. He is friendly, self-confident, optimistic—and not envious.

From "Impressions of the U.S.A," ca. 1931. Source misquoted in *Ideas and Opinions*, 3. Einstein Archives 28-167

The American lives even more for his goals, for the future, than the European. Life for him is always becoming, never being. . . . He is less of an individualist than the European . . . more emphasis is put on the "we" than the "I."

Ibid.

I have warm admiration for American institutes of scientific research. We are unjust in attempting to ascribe the increasing superiority of American research work exclusively to superior wealth; devotion, patience, a spirit of comradeship, and a talent for cooperation play an important part in its success.

Ibid.

This proves that knowledge and justice are ranked above power and wealth by a large section of the human race.

Ibid. Einstein came to this conclusion because Americans showed such reverence and respect for him, despite their reputed materialism.

For the long term I would prefer being in Holland rather than in America. . . . Besides having a handful of really fine scholars, it is a boring and barren society that would soon make you tremble.

To Paul Ehrenfest, April 3, 1932, after his return to Europe. Einstein Archives 10-227

I am very happy at the prospect of becoming an American citizen in another year. My desire to be a citizen of a free republic has always been strong and prompted me in my younger days to emigrate from Germany to Switzerland.

From a statement issued on his sixtieth birthday. Science 89, n.s. (1939), 242

\*In America, the development of the individual and his creative powers is possible, and that, to me, is the most valuable asset in life.

From "I Am an American," June 22, 1940. See Rowe and Schulmann, *Einstein on Politics*, 470. Einstein Archives 29-092

I hardly ever felt as alienated from people as I do right now. . . . The worst is that nowhere is there anything with which one can identify. Brutality and lies are everywhere.

To Gertrud Warschauer, July 15, 1950, about the McCarthy era. Einstein Archives 39-505

The German calamity of years ago repeats itself: people acquiesce without resistance and align themselves with the forces of evil.

To Queen Elisabeth of Belgium, January 6, 1951, about Mc-Carthyism in America. Einstein Archives 32-400

I have become a kind of enfant terrible in my new homeland because of my inability to keep silent and swallow everything that happens here.

To Queen Elisabeth of Belgium, March 28, 1954. Einstein Archives 32-410

## ON HIS ADOPTED HOMETOWN OF PRINCETON, NEW JERSEY

I found Princeton lovely: an as yet unsmoked pipe, so fresh, so young.

Quoted in the *New York Times*, July 8, 1921, reporting on his lecture trip to his future hometown

Princeton is a wondrous little spot, a quaint and ceremonious village of puny demigods on stilts. Yet, by ignoring certain social conventions, I have been able to create for myself an atmosphere conducive to study and free from distraction.

To Queen Elisabeth of Belgium, November 20, 1933. Einstein Archives 32-369

To an elderly man society here remains intrinsically foreign.

To Queen Elisabeth of Belgium, February 16, 1935. Einstein Archives 32-385

I am very happy with my new home in friendly America and in the liberal atmosphere of Princeton.

From an interview, Survey Graphic 24 (August 1935), 384, 413

I am privileged by fate to live here in Princeton as if on an island that . . . resembles the charming palace garden in Laeken [Belgium]. Into this small university town the chaotic voices of human strife barely penetrate. I am almost ashamed to be living in such a place while all the rest struggle and suffer.

To Queen Elisabeth of Belgium, March 20, 1936. Einstein Archives 32-387

In the face of all the heavy burdens I have borne in recent years, I feel doubly thankful that there has fallen on my lot in Princeton University a place for work and a scientific atmosphere which could not be better or more harmonious.

To university president Harold Dodds, January 14, 1937. At the time, Einstein's office was temporarily located on the Princeton campus even though he was a member of the Institute for Advanced Study, a separate institution whose campus had not yet been built. Part of this message is inscribed on the Einstein statue in Princeton. Einstein Archives 52-823

The Marquand estate is now a public park, and because today was Sunday and I didn't go to the Institute, I took a walk there—it's so close by, and so beautiful.

Quoted by Fantova, "Conversations with Einstein," May 8, 1954

## A banishment to paradise.

On going to Princeton. Quoted in Sayen, Einstein in America, 64

You are surprised, aren't you, at the contrast between my fame throughout the world ... and the isolation and quiet in which I live here. I wished for this isolation all my life, and now I have finally achieved it here in Princeton.

Quoted in Frank, Einstein: His Life and Times, 297



## On and to Children

young fellow. So then: The soup doesn't cool down as much because the layer of fat on the top makes evaporation more difficult and thereby also slows the cooling.

To an inquisitive child, name unknown, January 13, 1930. See Calaprice, *Dear Professor Einstein*, 121. Einstein Archives 42-592

\*To the schoolchildren of Japan: . . . I myself have visited your beautiful country, its cities, houses, its mountains and forests, from which Japanese youngsters derive a love for their homeland. On my table lies a large book full of colorful pictures drawn by Japanese children. . . . Remember that ours is the first era in which it has been possible for people of different nations to conduct their affairs in a friendly and understanding manner. . . . May the spirit of brotherly understanding . . . continue to grow. . . . I, an old man, . . . hope that your generation will some day put mine to shame.

Written in fall 1930. In Calaprice, *Dear Professor Einstein*, 122–123. Einstein Archives 42-594

\*My dear young people: Bear in mind the fact that the wonderful things which you come to know in your schools are the product of many generations . . . accomplished in enthusiastic struggle and with great effort in all countries of the earth. All this is now laid in your hands as your inheritance, to the end that you may receive, honor, and advance it and

some day faithfully convey it to your posterity . . . If you will constantly keep this in mind, you will find a meaning in life and effort and will attain the right attitude toward other peoples and other times.

From a speech at Pasadena City College, February 26, 1931. As published in *Pasadena Star News*, February 26, 1931, and *Pasadena Chronicle*, February 27, 1931. Differently translated in *Mein Weltbild*, 25. See also further information about this speech in the section "On Education, Students, and Academic Freedom."

\*Despite the natural presumption that life in some form may not be unique to our planet, the notion is beyond the current realm of knowledge.

To Dick Emmons, a sixteen-year-old amateur astronomer who later became a longtime member of Operation Moonwatch, a Smithsonian-sponsored organization started in 1956 to help track artificial satellites, November 11, 1935. Smithsonian Institution Archives, Richard Emmons Collection, Record Unit 08-112, Box 1. Also see Patrick McCray, Keep Watching the Skies! (Princeton, N.J.: Princeton University Press, 2008), 35. Einstein Archives 92-381

\*Dear Children: With pleasure I can picture you children gathered all together during the holidays, united by a harmonious spirit instilled by the warm glow of Christmas lights. But also remember the lessons taught by the one whose birthday you are celebrating. . . . Learn to be happy through the good fortunes and joys of your friends and not through senseless quarrels. . . . Your burden will seem lighter

or more bearable to you, you will find your own way through patience, and you will spread joy everywhere.

In response to a school's request for a meaningful Christmas message, December 20, 1935. In Calaprice, *Dear Professor Einstein*, 134–135. Einstein Archives 42-598

\*Dear Phyllis: . . . Scientists believe that every occurrence, including the affairs of human beings, is due to the laws of nature. Therefore a scientist cannot be inclined to believe that the course of events can be influenced by prayer. . . . But also, everyone who is seriously involved in the pursuit of science becomes convinced that some spirit is manifest in the laws of the universe, one that is vastly superior to that of man. In this way the pursuit of science leads to a religious feeling of a special sort.

To Phyllis Wright, January 24, 1936. In Calaprice, *Dear Professor Einstein*, 128–129. Einstein Archives 42-602

\*Dear Barbara: I was very pleased with your kind letter. Until now I never dreamed to be something like a hero. But since you have given me the nomination, I feel that I am one. . . . Do not worry about your difficulties in mathematics; I can assure you that mine are still greater.

To junior high school student Barbara Wilson, January 7, 1943. In Calaprice, *Dear Professor Einstein*, 140. Einstein Archives 42-606

\*Dear Hugh: There is no such thing like an irresistible force and immovable body. But there seems to be a very stubborn boy who has forced his way victoriously through strange difficulties created by himself for this purpose.

To Hugh Everett III, June 11, 1943. Hugh's letter is not in the archive, so there is no further background information. Einstein Archives 89-878

\*Dear Myfanwy:...I have to apologize to you that I am still among the living. There *will* be a remedy for this, however. Be not worried about "curved space." You will understand [it] at a later time.... Used in the right sense the word "curved" has not exactly the same meaning as in everyday language.... I hope that [your] future atsronomical investigations will not be discovered anymore by the eyes and ears of your school government.

To Myfanwy Williams in South Africa, who confided that she thought Einstein was dead, and that she and her friends secretly used a telescope after lights-out at her boarding school, August 25, 1946. Her first name had been wrongly transcribed as "Tyfanny"—thanks to Barbara Wolff of the Einstein Archives for the correction. In Calaprice, Dear Professor Einstein, 153. Einstein Archives 42-612

\*I do not mind that you are a girl. But the main thing is that you yourself do not mind. There is no reason for it.

From another letter to Myfanwy, September–October 1946. Einstein had mistaken her name for a boy's, and she wrote back explaining she's a girl, something she had "always regretted" but had become "resigned to." In Calaprice, *Dear Professor Einstein*, 156. Einstein Archives 42-614

\*Dear Monique: There has been an earth since a little more than a billion years. As for the question of the end of it I advise: Wait and see! . . . I enclose a few stamps for your collection.

To Monique Epstein in New York, June 19, 1951. In Calaprice, *Dear Professor Einstein*, 174–175. Einstein Archives 42-647

\*Dear Children: ... Without sunlight there is: no wheat, no bread, no grass, no cattle, no meat, no milk, and everything would be frozen. No LIFE.

To "Six Little Scientists" in Louisiana, December 12, 1951. In Calaprice, *Dear Professor Einstein*, 187. Einstein Archives 42-652

\*As an old schoolmaster I received with great joy and pride the nomination to the office of Rectorship of your Society. Despite my being an old gypsy there is a tendency to respectability inherent in old age—also with me. . . . I am a little (but not too much) bewildered . . . that this nomination was made independent of my consent.

To Sixth Form Society, Newcastle-under-Tyne, March 17, 1952. Einstein Archives 42-660

you and can love you. You can also learn a lot of good things from me that no one else can offer you so easily. The things I've gained from so much strenuous work should be of value not only to strangers but especially to my own boys. In the last few days I completed one of the finest papers of my life. When you're older I'll tell you about it.

To eleven-year-old Hans Albert, November 4, 1915, also referring to his paper on the general theory of relativity. *CPAE*, Vol. 8, Doc. 134

On the piano, play mainly the things that you enjoy, even if your teacher doesn't assign them to you. You learn the most from things that you enjoy doing so much that you don't even notice that the time is passing. Often I'm so engrossed in my work that I forget to eat lunch.

Ibid.

I'm very glad that you enjoy the piano so much. I have one in my little apartment, too, and play it every day. I also play the violin a lot. Maybe you can practice something to accompany a violin, and then we can play at Easter when we're together.

To Hans Albert, March 11, 1916. Einstein was not able to come at Christmas because of the difficulty of crossing borders during wartime, so he planned a trip at Easter. *CPAE*, Vol. 8, Doc. 199