Einstein and his closest friend

The image of Einstein that, somehow, represents "the true Einstein" to me is the one with the basset-hound expression reflecting the world's woes—with humor. That image is not conjured up in my mind when I read biographies of Einstein. Biographies furnish a great deal of information, but they rarely evoke a sense of direct contact with the subject; that is usually left to dramatists. Recently, I read a collection of Einstein's letters, however, and it was as if I heard his voice directly, not filtered through the alien sensibilities of a biographer. The impression was reinforced—negatively—by the French translation that followed each German original. Same content, but basset hounds don't speak French.

The letters compose the correspondence with one man, Michele Besso, over more than half a century (1903–55). They met over violins when Einstein was seventeen and Besso twenty-three, and remained "old cronies" (Einstein's phrase) until their deaths a few months apart, fifty-eight years later. Now, who was Besso?

The 1905 paper on the special theory of relativity, which bears not a single reference, closes with:

> "Finally I note that in working on the problem treated here I had the loyal support of my friend and colleague M. Besso, and I am indebted to him for several valuable suggestions."

Besso was not a physicist, but he evidently knew enough to make "valuable suggestions" on relativity. He was a close friend. "No one is as close to me as you," Einstein wrote. A Swiss engineer of Italian background, he worked with Einstein at the patent office. In fact, Einstein got him his job. They would walk home together and talk physics—our loss. Because they were talking, there are no letters between March 1903 and November 1909, and so we do not learn how the special theory was hatched. But this is not true of general relativity. "Talking physics" continued in the letters after Einstein left the patent office. Specialists can find in the letters ideas taking shape before they reach the publication's final form, where dead-end thoughts are omitted.

The collection is a mine of precious nuggets for everybody, not only specialists. They show the private Einstein. We know much of what Einstein thought,

EINSTEIN AND BESSO

in science and outside, from his published essays. But what of the views he didn't print? Physicists will delight in his remarks about other physicists, to wit:

> [*about the Heisenberg–Born–Jordan theory of quantum states*] "A veritable witches' multiplication table in which infinite determinants (matrices) take the place of cartesian coordinates. Extremely ingenious and sufficiently protected by great complexity from demonstration of error."
>
> "Stark claims to have discovered a Zeemann effect in the electric field. The work is swinish . . . ."
>
> "Laue is not open to considerations of principle, Planck neither, . . . A free, unbiased view is, in general, not natural to the (adult) German (blinkers!)."
>
> [*on criticism of relativity by Herman Weyl and another man, Einstein says they are both wrong, but*] "there are several orders of magnitude of difference between their sins. Weyl has a profound, clear mind, is a genuine pleasure to read. The other is untidy." [*The name of the other man is left blank; ellipses appear in a very small number of spaces in the letters—they apparently represent censorship by the Einstein estate.*]

Einstein finds Gibbs's book "a masterpiece, even if hard to read and the main points between the lines," but tells Besso that studying Herman Minkowski won't help him. "His works are unnecessarily complicated."

The letters—110 from Einstein, 119 from Besso—were collected, translated into French, and given a lengthy introduction by Pierre Speziali, a historian of science (American rights have been purchased by Alfred Knopf). The project, published by Hermann in 1972, entailed enormous labor and devotion. Every place, person, book—however marginally mentioned—is treated to a brief sketch in a footnote, or we are informed of attempts and failure. My only cavil concerns—apart from sunset prose in the introduction—the fact that Speziali is sometimes carried away by the momentum of his effort. For example, when Einstein no longer holds out hope for his son from medicine and writes, "I find it much better to leave nature undisturbed," we get a footnote with a quotation from Rousseau's *Emile*, in which a similar thought is expressed. (Footnote comments on relativity were written by experts.)

What the letters reveal about Einstein and his relationships is fascinating. He was not the naive innocent of legend but a man of great complexity. And he is aware of the complexities of others and of

situations, despite protestations that he is not very good in human affairs. In one instance, in 1917, he is sponsoring a petition on behalf of a physicist who had assassinated Austrian Prime Minister Stürgkh. Besso is handling details. Einstein instructs him to stress the man's hard work, his being a man of conscience, the respect others had for him . . . and, cautiously designating him by initial, adds:

"For your information A. has a pretty sterile rabbinical mind, is inflexible, with no sense of reality. Ultra-altruistic, with pronounced tendencies toward self-torment, even suicidal. A real martyr type."

Another time, after his separation from his wife, Einstein asks Besso to enquire whether his son might board with his (Einstein's) sister and her husband. He writes:

"But don't say it was I who asked, so that they can decline without embarrassment if it seems like too great a burden."

By this time Besso and Einstein are "in-laws" of a sort; Besso has married Anna Winteler—to whom Einstein introduced him—and Einstein's sister has married Anna's brother.

In addition to playing scientific straight man, his questions calling forth lengthy expositions from Einstein, we see Besso performing numerous tasks for Einstein that require considerable effort. Besso arranges for Einstein's divorce—the terms include awarding Mrs Einstein the Nobel Prize money, three years before Einstein is awarded the prize!—and sees to the care and education of Einstein's two sons.

What does Besso get in return? Obviously, he is flattered and grateful for the great man's friendship. Einstein patiently explains to him his work in progress. (The physics part of the relationship is not *totally* one-sided, as the 1905 acknowledgment attests; and it was Besso who brought Ernst Mach's work to Einstein's attention.) Besso writes:

"I am indebted to you for my wife and therefore my son and grandchild; I owe you my position and with it the peace of a secular cloister, and material security for hard times."

Undoubtedly true, and terribly important, but requiring not very much time and effort on Einstein's part. What Einstein does for Besso is similar to what he does for causes; namely, he uses his influence. When Besso is in danger of losing his job at the patent office, Einstein writes a letter of support. (In downgrading Einstein's effort, I am aware that, while an individual case may require little effort, Einstein had demands of this kind made on him by many, and the sum of infinitesimals can be finite.)

What Einstein derived from the relationship—apart from the human aspect—was a simplification of his life, as epitomized by his dispensing with socks, or the famous "What? Two soaps?" when asked why he didn't shave with shaving cream instead of soap.

There is a classic Jewish type called the "yeshiva boy" (or yeshiva scholar) whose recognized function it is to study the Talmud and its commentaries. The function of those around the yeshiva boy is to take care of the details of life, so as to make it as easy as possible for him to perform his function and think his lofty thoughts. This may not be an orthodox view, but I see Besso as helping Einstein to play the yeshiva boy. Einstein is, in a sense, the ultimate yeshiva boy, studying God's works not in the holy texts but in the laws of physics. There are numerous references to Jehovah in the letters.

What of the wife of the yeshiva boy? The very first letter thanks Besso for his letter, says "Well, I am now a married man and have a nice, comfortable life with my wife. She manages everything superbly, cooks well, and is always cheerful"—then, switches to physics. This is hardly the description of *la grande passion*. (Einstein was married twice; the first marriage ended in divorce.)

The letters trace the disintegration of the first marriage. Feelings are not discussed; one infers feelings from events. There is a great deal of tragedy. The biographies I have read tell of divorce and of illness, but give few details. Perhaps biographers do not wish to appear to be gossiping, but, to paraphrase Saul Bellow's friend who said "When I do it, it's social history," when it is about Einstein, it is science history. His first wife's illness is initially mysterious. Then Besso writes to Einstein (after the separation) that tuberculosis of the brain is suspected. There seems to be a strong psychological component, for Besso writes that she must remain in bed, immobile, and adds:

"It seems that this latest turn for the worse coincided with a letter that little Albert received (from you?) and that he didn't want to show her."

Concern over the younger son's health is expressed. Then the two illnesses come together as Einstein writes:

"The condition of my youngest depresses me. It is out of the question that he will be a normal man. Who knows whether it wouldn't be better if he could take leave of life before he really experiences it. It is my fault and for the first time in my life I reproach myself. I have taken everything else lightly or have not felt myself actually responsible. I was not acquainted with the nature of scrofula. I did not know that this tuberculosis has inheritance risks for children. To tell the truth, I also didn't know about scrofula, and attributed no particular significance to the glandular

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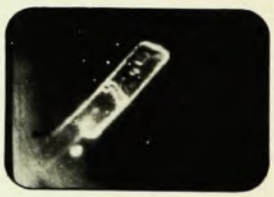
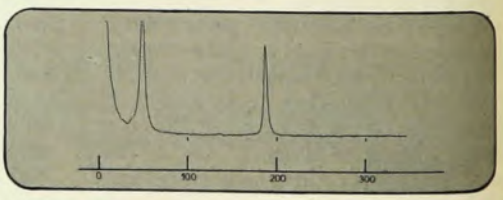


Mapping of the $HgBr_2$ crystals

Mapping of the MoO_3 crystals



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swellings that appeared on my wife. Now the tragedy is here, as was ordained. One must bear one's lot without complaining. One concerns oneself with the sick and consoles oneself with the well."

The boy's illness was later diagnosed as schizophrenia.[1] Scrofula is tuberculosis of the lymph glands, particularly in the neck. (In medieval times it was known as the "king's evil" and believed to be curable by a king's touch.) Many psychiatrists today believe that schizophrenia has a hereditary component. However, physical medicine holds that if scrofula were transmitted by the mother, it would result in death of the offspring. By contemporary standards, Einstein's belief was unfounded.

What do we make of his being able to work throughout all this? Does he have no feelings? He describes himself as "cautious and hard boiled" and he shows himself to *be* hard boiled in the financial dealings with his first wife during the separation. The impression I form from the letters is that he has the feelings and sensitivities and passions but is able to rule with his head as few men can. He survives by pouring his energies into work.

Einstein is as different from Besso as the opposites who are purported to attract. This is striking even in their writing styles. Einstein's letters read like his essays, clear, to the point, without frills, but with flair and humor. Speziali informs us that they were single drafts, with virtually nothing crossed out and only one or two words inserted. Besso, on the other hand, writes several drafts over days or weeks before mailing the final one. Einstein, with a bit of affectionate teasing, says of his friend's style:

"Your letters are like a Japanese present, artistically wrapped in bits of paper of all possible colors, complicatedly tied with little strings, so that the business of unpacking is pleasurable but rather protracted."

Besso is the perpetual student, enrolling in courses into his old age, taking hundreds of books out of the library. His publications are listed in the introduction. There are twenty, on subjects ranging from patent law, through genetics, to space-time. He is constantly wrestling with his soul and worrying about his place in the universe. Einstein, meanwhile, is worrying about the universe itself—at least in these letters.

The range of subjects in the correspondence is enormous: physics, industrial management, the gold standard, literature, politics .... There are Latin quotations and Greek citations, mostly by Besso, but Einstein could not have been unfamiliar with them. And it is he who, in 1916, tells Besso "not to forget to poke your nose into the book by Mann." (Speziali speculates that the book may have been *Death in Venice.*)

On "something for everybody" in the correspondence, graduate students will appreciate Einstein's:

"I will not go for a doctorate; it will not help me, and the whole farce has become tedious."

Physicists can profit from his observations that

"One who has been infatuated with an idea for more than half a year can no longer be released from its spell, at least not by others." "... For nearly everybody, temporary success has more power of persuasion than consideration of principle; fashion makes people deaf—if only for a while."

As human beings we can only respond with distress to the last letter in the collection, written by Einstein to Besso's son and sister on being informed of Besso's death. It was written less than a month before his own death.

"The gift of a harmonious life is seldom paired with such a sharp intelligence, particularly to the degree encountered in him."

This then evokes in the old man the tragic revelation:

"But what I most admired in him as a man is the fact that he succeeded in living for many years with one woman, not only in peace but in constant accord—a venture in which I twice rather shamefully foundered . . . ."

Reference

1. R. W. Clark, *Einstein: the Life and Times*, World, New York (1971); page 523.

GRACE MARMOR SPRUCH
Rutgers University
Newark, N.J.
10/4/76

Inaccuracy

Luis Alvarez has pointed out an inaccuracy in my article "Rowland's Physics" which appeared in the July issue. Actually it was Frederich Banting and Charles Hubert Best who made the discovery of insulin.

JOHN D. MILLER
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Berkeley, California
8/12/76

Problems with fossil fuels

Something like 98% of the world's energy demand is supplied by oil, coal and gas. Yet, there is much less concern about these fossil fuels than about nuclear energy. Even scientists are signing statements against nuclear energy without stating if they prefer an increased use of fossil fuels, or if they are advocates of a drastic change to a low-energy society.

Inspired by the lists of arguments against nuclear energy, I have tried to make a similar check list for fossil fuels to