My Half Hour with Einstein

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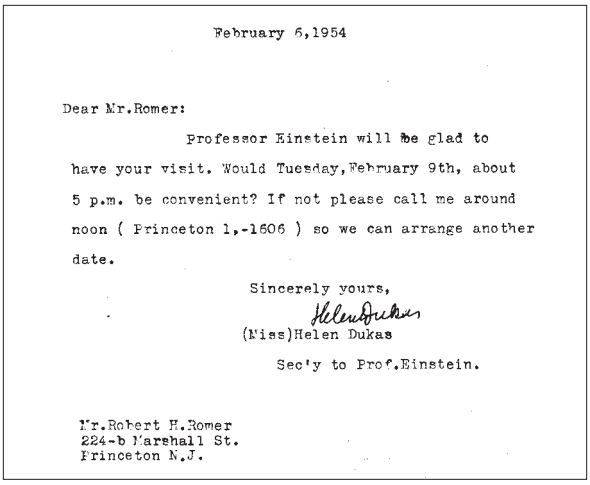
"So you're studying at Princeton. Would you like to meet Einstein?" That question, during a brief two-body collision at a cocktail party, a collision that was over before I could think of an appropriate response, led—over a year later—to one of the more memorable half hours of my life. It was an elastic collision, we drifted apart, and I thought it had simply been a casual remark until a few days later when the mail brought me a carbon copy [sic] of a letter (dated "25.XII.52") from the speaker, Dr. Tilly Edinger, to Albert Einstein. Accompanying the letter to Einstein was a card that Dr. Edinger advised me to send around to Einstein's home on Mercer Street to request a meeting. (What is perhaps most truly astonishing in connection with this event is that not only do I still have that carbon copy—and the eventual letter from Mercer Street that invited me to Einstein's home—but that I was able to find both documents in my attic!)

How did this come about? I was a first-year graduate student at Princeton, home in Cambridge for Christmas vacation. My father was director of Harvard's Museum of Comparative Zoology, and I knew of Edinger as a paleontological friend and colleague of my father's. What I had not explicitly realized earlier was that she had been a distinguished German paleontologist in the 1930s and that my father, knowing her work but never having met her in person, had arranged for her admission to the United States by creating a research position at Harvard and signing a personal affidavit (necessary for a visa) guaranteeing financial support if necessary. That was in 1938, but even with that pledge, it would be two years before her entry into the United States would be possible. After *Kristallnacht* (November 9–10, 1938), her life was obviously in danger. In May 1939, with the help of the Notgemeinschaft Deutscher Wissenschaftler im Ausland (Emergency Association of German Scientists in Exile), she found temporary asylum in London, and finally—on May 11, 1940—arrived in New York.[1]

Most of Edinger's relatives died in the Holocaust, but she eventually learned of a distant relative living in Princeton. No, it was not Einstein, but someone



February 6,1954

Dear Mr.Romer:

Professor Einstein will be glad to have your visit. Would Tuesday, February 9th, about 5 p.m. be convenient? If not please call me around noon (Princeton 1,-1606) so we can arrange another date.

Sincerely yours,

(Miss)Helen Dukas

Sec'y to Prof.Einstein.

Mr.Robert H.Romer
224-b Marshall St.
Princeton N.J.

Fig. 1. My invitation to meet Einstein. Unfortunately, the letter was not signed by Einstein himself. On the back of the envelope, only the street address was readable; the name, "PROF. ALBERT EINSTEIN," was blacked out and not easy to discern. Who can blame him for taking little steps to preserve his privacy? (And, of course, had his name been easily readable on the envelope, the letter might have been stolen by the mail carrier, and my interview would never have occurred.)

whose name is well known to anyone familiar with Einstein's life: Helen Dukas, Einstein's longtime housekeeper and secretary. After Edinger made contact with Dukas, she eventually got to know Einstein himself and enjoyed a number of visits to his home with conversations on Darwinian evolution and other topics.

What Edinger had written to Einstein was, in part, as follows. "*Lieber verehrter Herr Professor, Immer wenn ich ein Bild von Ihnen sehe, oder auch nur Ihren Namen, oder (gestern) Ihre Ansicht über die Wirkung von McCarran & Genossen, lächle ich Sie liebevoll an!*" ("My dear adored Mr. Professor. Whenever I see a picture of you, or just your name, or (yesterday) your opinion about the effects of McCarran and Company, I smile at you with affection.") She went on, describing a recent trip ("to the paradise of vertebrate paleontologists, the badlands of South Dakota and Nebraska") in the company of my father and mother ("*meinem Engels — Chef & Frau*"), explaining the term "*Engels*" (angels) in this way: "*unter Andrem hat er mein Leben gerettet indem er mich—unbekannterweise—1938 hierher einlud*." ("Among other things, he saved my life by inviting me here—without knowing me—back in 1938.") And, again referring to my father: "And this is the reason why I am suddenly again writing to you. His son is a graduate student in physics at Princeton. Therefore I am giving him a note to you and if he finds the courage (*Mut*), he will send it to you, and if it isn't too much bother and you find the time ... ?"

And thus I returned to Princeton in the winter of 1953, armed with a card to send to Albert Einstein, a card that would in all probability lead to a personal visit. For over a year, I did nothing with the card. I was intensely busy with graduate courses in quantum mechanics and electromagnetic theory, with my initial research efforts, wondering whether I could possibly pass the qualifying exams. ("Generals," we called them at Princeton.) Also, I wondered whether I was presumptuous enough to invite myself to the home of this man we all worshiped. Did I have the right to waste his time this way? And, of course, did I indeed have the *Mut* to send the card?

Einstein almost never came to Palmer Lab, then the home of Princeton's physics department. Most of us had never seen him. Gadually it became known among my fellow graduate students that I had in my possession an introduction to Einstein. With increasing urgency, they advised me to use it. "I would die for a chance to meet him" was a typical comment. So finally, in February 1954 (by this time, I *had* passed the qualifying exams), I worked up my nerve and sent the card, with a respectful note asking if I might come for a visit.

A few days later came a reply from Helen Dukas (Fig. 1): "Would Tuesday, February 9th, about 5 p.m. be convenient?" she asked. Young and innocent I may have been, but you can be absolutely certain that I found it convenient! Whatever else I might have planned for that day, whatever Robert Dicke,[2] my adviser, might have wanted me to do, was set aside. I sent back a note to Dukas and showed up at the appointed time at 112 Mercer Street.

Ms. Dukas welcomed me and showed me upstairs to Einstein's small and cluttered study. And there was Einstein, looking "just like Einstein": khaki trousers, gray sweatshirt, dressed about as fashionably as I dress now. I have no recollection of what I wore—perhaps a little-used coat and tie—nor do I remember our conversation in as much detail as I would like. What I remember most vividly is my initial awkwardness—and how it quickly vanished. I wish I could say that he had called me in for mathematical advice on his continuing (and vain) search for a unified theory of gravitation and electromagnetism. But of course I was really there so that I would be able to tell my future children and students (and I *do* tell them!) that I had met Einstein. I was nervous, he knew I was nervous, I knew he knew, ... But, I realized later, after a few minutes of conversation I was no longer nervous; we simply conversed. Of course, he was used to visits from young physicists like me and was apparently adept at putting visitors at ease. What a nice man!

We talked about the Bomb. About the SSRS ("Society for Social Responsibility in Science"), a somewhat leftish organization to which we both belonged. About Israel, whose presidency Einstein had recently been offered, an offer that—probably fortunately for everyone—he had declined. And about fossil horse brains, Dr. Edinger's specialty. We talked a bit about evolution. "Has there been enough *time* for all those changes?" he wondered.[3] And physics. "Do you *really* believe that if someone here measured the spin of an

atom, it could affect the simultaneous measurement of the spin of another atom way over there?" pointing down Mercer Street. Did he really use that word, "simultaneous," with all the baggage it now carries, baggage for which Einstein himself was responsible? I think so, but I'm not sure. And did he phrase the description of the EPR experiment in terms of spin—the Bohm version[4]—rather than x and p as in the original EPR paper?[5] Again, I'm not certain now. I felt totally inadequate on that issue. (Fifty years later, I still feel nearly as inadequate as I did then.) I knew that he was not in the majority on this question, that he was regarded as out of touch by most younger physicists, yet I knew in my heart that if *he* retained doubts about the foundations of quantum mechanics, so should we all, even as we kept on with the rest of physics. I wished that I had had better questions for him, that I had been better prepared for the visit. Klein[6] quotes a remark by Ehrenfest: "Nothing is shabbier than the feeling: now God has granted me the opportunity to meet this man, and I sat before him open-mouthed; how much I might have asked him—but nothing at all occurred to me." It is difficult to think of a more apt description of me!

So we just chatted (like any two physicists!) for about half an hour, when I suddenly came to and remembered where I was, thanked him for his time, and let Ms. Dukas show me out. That was a memorable half hour in my life, though not an important one in his. I wish now that I had gone home and immediately written down everything I could remember about that conversation, but it was some decades before I did so. When I was *AJP* editor (1988–2001), some colleagues urged me to write an editorial about that conversation, but that somehow seemed to me inappropriate. I did, though, manage to insert a mention of it into another editorial that I wrote.[7]

The number of us who have actually met Einstein, even for such an insignificant conversation as the one he and I had in 1954, is of course diminishing. In this centennial year, it seems appropriate to use a few pages in *TPT* to pass on my recollections of that meeting. And I must admit that I still occasionally manage to impress friends, physicists and others (yes, even editors retain a few friends), by letting slip the fact that a long time ago I really did have a one-on-one conversation with Albert Einstein.

References

1. Emily A. Buchholtz and Ernst-August Seyfarth, "The Study of 'Fossil Brains': Tilly Edinger (1897–1967) and the Beginnings of Paleoneurology," *BioScience* **51**, 674–682 (2001), and "The Gospel of the Fossil Brain: Tilly Edinger and the Science of Paleoneurology," *Brain Res. Bull.* **48** (4), 351–361 (1999).
2. Robert H. Dicke was a great physicist, an experimentalist and a theoretician, a deep thinker whom I did not really get to know until after my time at Princeton. We graduate students always addressed him as "Dr. Dicke"and referred to him among ourselves—respectfully—as "RHD." It was a very long time (long after Princeton) before I called him "Bob." One of his talents that is not widely known in the physics community, though well known and much appreciated among his students, was his ability to get rid of "60-cycle hum." Every Dicke student ended up building at least one lock-in amplifier. Today's students may not realize that in those days electronics meant vacuum tubes, and vacuum tubes do not work without heated filaments. Unless one resorted to the inelegant brute-force approach of using a car battery, every electronic chassis had many wires carrying hefty 60 Hz currents (we said "60 cycles per second" in those days), and the combined workings of Ampere's and Faraday's laws could be disastrous. Dr. Dicke had a magical way of walking into a lab, looking, thinking a bit, and then solving the problem by suggesting: "Why not move that clip lead from here over to there?"
3. It was a good question in 1859 when Darwin made a try at an early but serious back-of-the-envelope estimate ("to gain some notion, however imperfect, of the lapse of years"), an attempt to calculate the time required for the "denudation of the Weald." (Charles Darwin, *On The Origin of Species By Means of Natural Selection* [John Murray, London, 1859], 1st ed., pp. 285–287; facsimile reproduction by Harvard University Press, 1964.) It was a good question in 1954, and it's still a good question, one that any intelligent person will ask. Darwin unfortunately dropped this calculation from his book when he revised it in 1861, perhaps because he was embarrassed at how uncertain his estimate necessarily was.
4. David Bohm, *Quantum Theory* (Prentice-Hall, New York, 1951), Chap. 22. Bohm's book was much used by Princeton graduate students at that time; Einstein may have known that. Bohm, and his book, were highly thought of in the Princeton physics department, even though Bohm himself had by that time gone to Brazil. He had pleaded the Fifth Amendment before the House Un-American Activities Committee in 1949 and

for this offense had been suspended by Princeton University and forbidden to set foot on campus. Brought to court on charges of contempt, he was eventually acquitted on all counts. Princeton, however, did not renew his contract. See, for instance, F. David Peat, *Infinite Potential – The Life and Times of David Bohm* (Addison-Wesley, Reading, MA, 1997), Chap. 6. I was unaware of all this at the time I was choosing a graduate school in 1951–52. Had I known, would it have influenced my choice? I have no idea.

5. A. Einstein, B. Podolsky, and N. Rosen, "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?" *Phys. Rev*. **47**, 777–780 (1935).
6. Martin J. Klein, *Paul Ehrenfest, Vol. 1, The Making of a Theoretical Physicist* (North-Holland, Amsterdam, 1970), pp. 43–44. Ehrenfest was not referring to any specific opportunity he had missed. Rather, this was one of a number of observations he had made in a notebook in 1912, thoughts on the importance of recording *questions*, primarily for his own clarification but also to have them "ready for asking the right people, in case one comes across them."
7. Robert H. Romer, "John S. Bell (1928–1990), the man who proved Einstein was right," *Am. J. Phys*. **59** (4), 299–300 (1991). My editorial was not an obituary of Bell but rather some thoughts about Bell and Einstein, provoked by an obituary of Bell that had appeared elsewhere: John Gribbin, "The man who proved Einstein was wrong," *New Sci*. **128** (1744), 43–45 (1990). In spite of what one might infer from the title of my editorial, my point was not that Einstein was right in believing to the end, apparently, that some form of hidden-variables theory would work, but that he was right to continue worrying about the logical foundations of quantum mechanics and, by his skepticism, inspiring others to worry as well. Indeed Bell himself had written that Einstein's doubts helped to motivate him in his own work that led to "Bell's theorem" and to experimental tests.

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