



Albert Einstein to Paul Ehrenfest¹

Translated and annotated by Bertram Schwarzschild

Einstein writes to his close friend just four months after the armistice that marked Germany's defeat in World War I. Demonstrations, often violent, by right- and left-wing extremists frequently disrupt the capital and its university. Food shortage is exacerbated by the British naval blockade, which continues until the Versailles conference that summer. As a professor of theoretical physics at the University of Leiden in neutral Holland, the Vienna-born Ehrenfest has escaped all this misery. During the war, Einstein was one of the rare academics in Germany to openly oppose the country's militarism.

The letter's final sentences refer to the only experiment of Einstein's career—carried out with Wander De Haas in 1915. By looking for a torque when they suddenly reversed the magnetization of a magnetized object, Einstein and De Haas were, in effect, measuring the electron's Landé g factor—and they got it wrong by about a factor of two.

Berlin, 22 March 1919

Dear Ehrenfest,

Shame on me for taking so long to respond to your [the familiar *Diene*] heart-warming invitation. It was because I didn't know whether to say yes or no. I am mightily drawn to visit you. On the other hand, traveling is dreadful, especially for someone with queasy intestines. . . . I would really like to get to know Bohr, with his marvelously intuitive gift. But it can't be done. . . . I'm way behind in the lectures I'm giving here, partly because of my Zürich lectures, and partly because many lectures here had to be canceled because the university was shut down by disruptions. Finally, I'm passionately preoccupied by a problem in general relativity that won't leave me in peace, day or night.

I'm very disillusioned with politics right now. Those countries [the Allied powers] whose victory I thought, during the war, would be by far the lesser evil, now show themselves to be an only slightly lesser evil. On top of that, there's the thoroughly dishonorable domestic politics: the reactionaries with all their shameful deeds in repulsive revolutionary disguise. One doesn't know where to look to take pleasure in human striving. What makes me happiest is the [prospective] realization of a Jewish state in Palestine. It seems to me that our brethren [*Stammgenossen*] really are nicer [*sympathischer*] (at least less brutal) than these awful [*scheusslichen*] Europeans. Maybe it can only get better if the Chinese alone survive; they lump all Europeans together as "bandits."

I find Schouten's thoughts on relativistic precession very clever, though not entirely compelling. . . .² A very good experimenter in Zürich (Dr. [Emil] Beck) finds that the gyromagnetic effect measured by De Haas and me is only half as big as required by theory [and later experiments].³ The man is to be taken quite seriously. To settle the matter, the experiments should be repeated.

Warm greetings from your

Einstein

References and notes

1. *The Collected Papers of Albert Einstein*, vol. 9, D. K. Buchwald et al., eds., Princeton U. Press, Princeton, NJ (2004), p. 15.
2. Jan Schouten's 1918 paper deals with what is now called the geodetic precession of a gyroscope orbiting in the curved spacetime around a massive body.
3. For discussion of the experiments and the motivating theory, see *The Collected Papers of Albert Einstein*, vol. 6, A. J. Kox et al., eds., Princeton U. Press, Princeton, NJ (1996), p. 145.

Cockroft. That visit planted the first seed of the enterprise that was to become CERN.¹ Around the same time, several others voiced their ideas for a European laboratory. Notable among those ideas was Louis de Broglie's proposal, presented at the European Cultural Conference in Lausanne, Switzerland, in December 1949,² to set up a new European lab-

oratory so as to halt the exodus of physics talent to North America.

The year prior to the Florence resolution, 1949, was crucial. Amaldi's research group in Rome examined the various aspects, including energy and costs, of the accelerators to be built at the proposed European laboratory. During that work, Amaldi frequently exchanged

letters with Gilberto Bernardini, who was at Columbia University and in close contact with Rabi.³ After lengthy discussions with Amaldi and other scientists—notably the United Nations Educational, Scientific and Cultural Organization's director of exact and natural sciences, Pierre Auger—Rabi drafted a resolution calling on UNESCO to help develop regional research facilities "to increase and make more fruitful the international collaboration of scientists." He presented that resolution at UNESCO's Florence meeting in June 1950.

Amaldi and Auger took on the task of advancing the Florence resolution. At the executive committee meeting of the International Union of Pure and Applied Physics held in Cambridge, Massachusetts, in September 1950, Amaldi suggested that IUPAP should consider how best to implement the Florence resolution. On 12 December 1950 Auger convened a meeting of important physicists and science administrators at the European Cultural Centre in Geneva. Amaldi and Gustavo Colonnetti, then president of the Italian Research Council, were invited from Italy. As a result of the meeting, Colonnetti immediately donated 2 million lire (approximately US\$ 3200). Additional contributions from Belgium and France brought the funding to a modest total of about \$10 000, enough to initiate the first steps in developing a large particle accelerator.

In May 1951, Auger and Amaldi called a meeting of experts from Sweden, Belgium, Norway, Britain, the Netherlands, France, and Switzerland at UNESCO headquarters in Paris. They wrote a justification for the collaborative European project: The anticipated cost exceeded what any single country could afford. The experts also discussed the accelerator energy and budget and called for an intergovernmental conference, which met under the auspices of UNESCO in December 1951.

Not everyone readily accepted the idea of a European laboratory. Niels Bohr, James Chadwick, and Hendrick Kramers, eminent members of the European physics community, questioned the practicality of starting a new laboratory from scratch.⁴ However, Amaldi and his UNESCO colleagues would not be dissuaded; during a meeting in the fall of 1951, they blended the opposition's ideas into a modified version of the project.