

RICHARD FEYNMAN, SOURCERER

This is an addendum to my article on Richard Feynman in the Feynman commemorative issue (February, page 42). That article contains many Feynman quotations, taken almost entirely from his 1965 Nobel address, as recorded in the 1966 Nobel Foundation book *Les Prix Nobel en 1965*. Inasmuch as that volume also includes Sin-itiro Tomonaga's delayed lecture of 6 May 1966, it is very likely that the book was distributed in the second half of that year.

I had retained no particular memory of Feynman's Nobel lecture, and I do not think that I glanced at his printed account more than casually on its arrival from Stockholm in the latter part of 1966. Thus, when I finally read his words in detail last September, it was a severe jolt to come across the following section (in which Feynman is proposing a replacement for the use of wavefunctions in situations that lack time locality): "Instead of wavefunctions we could talk about this; that if a source of a certain kind emits a particle, and a detector is there to receive it, we can give the [probability] amplitude that the source will emit and the detector receive. We do this without specifying the exact instant that the source emits or . . . [the] detector receives, without trying to specify the state of anything at any particular time in between, but by just finding the amplitude for the complete experiment. And, then we could discuss how that amplitude would change if you had a scattering sample in between . . . and so on."

These are the initial stages of source theory! (It was during the Spring 1966 semester at Harvard that I began to appreciate that a new and more physical foundation would appear if the familiar concept of the source of a field were replaced by that of a particle.) And then I remembered a long-ago conversation with Feynman. In response to his query about the nature of source theory, I had given him a brief outline, to which he replied, "I had an idea like that once, but I never got around to doing anything with it."

Feynman had a long record of disdain for renormalization as a method of dealing with divergences: He called it "a way to sweep . . . divergences under the rug," "a dippy process" and "hocus-pocus." If he had gotten around to doing something with the particle source concept, would he not have recognized that source theory is the realization of his lifelong quest for a physically intuitive theory that is devoid of divergences—and free of renormalization?

I cannot rule out the possibility that I came away from Feynman's Nobel lecture with a subliminal implantation of the particle source idea. Accordingly, I am happy to acknowledge Richard Feynman as a virtual source of source theory.

JULIAN SCHWINGER
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2/89

Surely Mr. Feynman Was Joking

The February issue of *PHYSICS TODAY* celebrated the life of Richard Feynman. It seems to me appropriate to make some mention of Feynman's opinion of *PHYSICS TODAY*. I believe that what follows can count as the formal publication of a historically important document.

On 26 October 1964, the American Institute of Physics sent Feynman a communication that began, "In our RENEWAL INSTRUCTIONS covering your Renewal Invoice for dues and/or subscriptions. . . ."

Feynman's reply of 9 November 1964 follows in full:

Gentlemen:

Look—I'm a physicist, not an accountant—please send me *Physical Review A* and *B*—do NOT send *Physics Today* under any circumstances—and tell me how much I owe you. I don't know what an invoice is—nor did you enclose the "business reply envelope for my convenience."

Sincerely,
Richard P. Feynman

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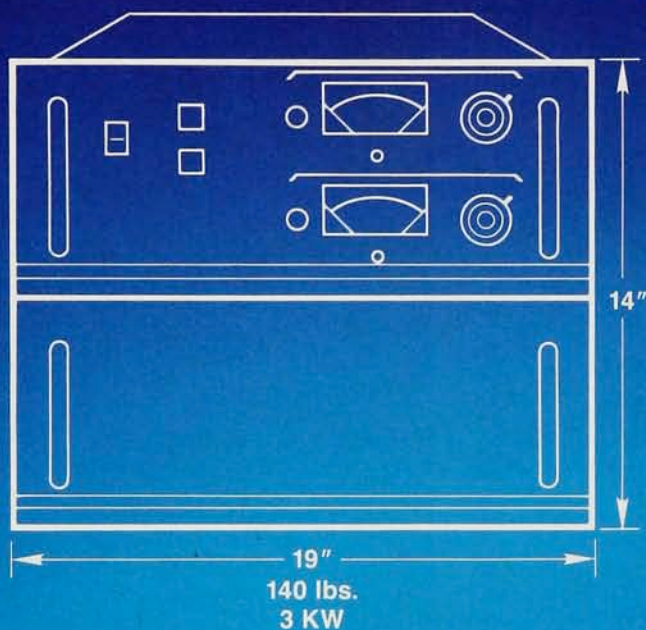
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Feynman papers in the Caltech archives by Paula Hurwitz and Charlotte Erwin in December 1988.

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12/88

Appeals for Tayseer Aruri

On several occasions in the late 1970s and early 1980s, most notably in December 1982, I had the opportunity to visit the universities in the Israeli-occupied West Bank. At Birzeit University, An-Najah University and Bethlehem University, I met a number of very impressive individuals, who were doing their best to develop educational institutions. One of those people was Tayseer Aruri, a physicist at Birzeit.

After being educated in Moscow in the early 1970s, Aruri returned to the occupied territories, where he was arrested in 1974. For four years he was imprisoned in "administrative detention"—without trial. He was not accused of responsibility for acts of violence. His case eventually attracted the interest of some journalists and intellectuals in Israel and abroad (including Freeman Dyson, my colleague at the Institute for Advanced Study), and he was freed in 1978. He is currently 43 years old and has three children, aged one to five.

When I met Aruri in 1982, he told me that the worst part of prison life was the crowding. The crowding was "unbelievable," and "the prisoners had to sleep in shifts."

Aruri told me in 1982: "I believe that the solution to the conflict between Israelis and Palestinians must be a Palestinian state alongside and at peace with the state of Israel. I want to be very precise: The borders of this state should be the West Bank and Gaza. If we say we want a Palestinian state that includes Tel Aviv, naturally all the people in Tel Aviv will be opposed to this. I have believed for many years that we Palestinians should make our position more explicit. . . . These have been my views since before I was arrested."

Not surprisingly, about a year ago Aruri was one of the signatories of a symbolic "peace treaty" that was signed by 25 Israeli and Palestinian intellectuals. But it was a shock to learn that he was arrested again in August 1988 and is one of a new group of two dozen Palestinians in the occupied territories who are threatened by the Israeli Army with being

deported. [See PHYSICS TODAY, December, page 127.]

It is disturbing that a person with views such as Aruri's should be considered a candidate for deportation. This fact deserves to be pondered seriously.

Many voices have been raised against Aruri's prospective deportation. The US State Department has criticized the threatened deportations; Amnesty International has adopted Aruri as a "prisoner of conscience"; Anthony Lewis devoted a *New York Times* column to the Aruri case.

It will doubtless be claimed by some that Aruri is being justly punished for a role in promoting the Palestinian "intifada." Such claims may involve attempts to confuse normal, legitimate political activity with violence. They may also be based in part on innuendos about secret evidence; certainly this is how foreigners who inquired about Aruri's incarceration in the 1970s were answered. The context in which Aruri is currently threatened with deportation should help put the excuses that may be made for his treatment in their proper perspective. Aruri is not the only physicist in the occupied territories who has recently been incarcerated. Nicola Dabit (of Birzeit) was incarcerated for a number of months, and Sami Kilani (of An-Najah) was imprisoned on several occasions, for durations adding up to a period of years. (And a fourth physicist, Abdel-Gaber Shayeb, a native of the occupied territories, was classified as a foreigner; as a result, he was ordered to sign an anti-PLO statement required of foreign lecturers in the occupied territories, and after he refused to sign he and his family had to leave the country.)

Of course, the situation of physicists is not unique. Of some 150 journalists in the occupied territories, more than 50 have been imprisoned at some point for more than six months, and more than a dozen are currently imprisoned. In fact, nearly 20 000 people from all walks of life have been imprisoned at different times in the last year, with thousands currently held under extremely difficult conditions. Facts such as these help supply the context for understanding Aruri's current situation.

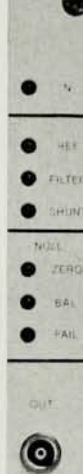
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3/89

I wish to call the attention of APS members to the case of Tayseer Ali Aruri, a professor at Birzeit University.
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