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reads about the Dundee and RCA work on a-Si:H in forms similar to Fritzsche's version cited above. While there may be nuances of this history of which we are unaware, we believe that we have accurately described the main events of its development.

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Tokamak history

I have read Harold Furth's article on "Reaching ignition in the tokamak" (March, page 52) with great interest. I have found the overview of the work performed to date on tokamak ignition devices to be remiss. It completely omits the major design and development work performed by INESCO Inc on the tokamak ignition device, FDX, which was first proposed by Robert Bussard and Bruno Coppi in 1977 and completely funded by private sources ($17 million spent 1980–84). The results and descriptions of the design effort (PHYSICS TODAY, May 1981, page 17) were published extensively in scientific journals and presented at national and international conferences, national labs, as well as at universities, and even to the US Congress.

The engineering design studies performed by INESCO Inc defined[1] a wide range of phase space in which these highly compact, water-cooled copper tokamaks could potentially attain ignition and burn conditions. The feasibility of construction of low-aspect-ratio R/a tokamaks that are capable of attaining ignition and high β was demonstrated. The "steady-state" nature of the cooling systems allows these FDX tokamaks to be used in a long burn mode (greater than 10 sec), which would allow for equilibrium of the burn. In his article, Furth claims a 1-sec burn limit for subcompact tokamaks.

In addition, I would like to point out an error in reference 6. The correct reference is: S. N. Rosenwasser, R. D. Stevenson, G. Listvinsky, D. L. Vrable, J. E. McGregor, N. Nir, *J. Nucl. Mater.* **122 & 123**, 1107 (1984)—all INESCO Inc employees at the time of publication.

It is important to note that the reference details the advantages and viability of compact copper reactors such as the Riggatron, as well as subcompact ignition tokamaks such as FDX, in contrast to the allusion of relying on this reference to demonstrate the improbable future of copper reactors and the supposed practicality of superconducting tokamak reactors.

It is unfortunate that valuable work that has not depended on taxpayers' resources is totally ignored by a leading scientist who is solely dependent on the Federal tax till. Logic would have dictated that cost sharing between the Federal government and private industry would be encouraged and that scientists supported by the public would elicit private contributions that enhance the technical base of the fusion program. The opposite has proven to be the case, shattering my naiveté.

Reference

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THE AUTHOR COMMENTS: My article "Reaching ignition in the tokamak" cites Bruno Coppi as the chief advocate of the high-field approach to ignition, because Coppi introduced the basic idea as well as the most interesting variations.

During the late 1970s and early 1980s, a number of high-field ignition devices were proposed—among them the FDX, which Ramy Shanny mentions, and the ZEPHYR, which was based[1] on a major design study by the Max Planck Institut für Plasmaphysik in Garching, Germany. Generally speaking, the INESCO and Garching groups reached opposite conclusions, but both studies produced creative ideas and significant technical data. A more detailed history of tokamak ignition projects would have included an appreciation of both the FDX and ZEPHYR—and several others as well.

The main objective of INESCO's design work was to build a compact commercial D-T tokamak reactor (the Riggatron), which has its tritium-breeding blanket *outside* the magnet coils. My article did refer to this INESCO concept, because of its uniqueness. I regret the inaccuracy of the author listing in my reference to the INESCO work.

Reference

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Sabine and acoustics

Leo L. Beranek provided us with a fascinating article on "Wallace Clement Sabine and acoustics" (February, page 44). It was revealing to learn how long and hard Sabine worked to come up with the first practical room-reverberation formula, and then to apply it in the design and construction of auditoriums in his era. He was truly a genius in acoustics.

However, I would like to suggest a modest correction involving the period of Sabine's graduate work at Harvard University. Based[1] on information in Dana Orcutt's biography of Sabine, the article states that, "At the end of his first year at Harvard (1887), he was awarded a two-year Morgan Fellowship . . .," and also that "During the next two summers he supplemented his fellowship stipend with employment at the Bell Telephone Laboratories."

The latter statement is in error, but only because the name of the company is out of place with the time of the events. After a bit of trivial pursuit, I found that telephone research in that period was conducted[2] for a number of years (starting in 1885) in a laboratory of the mechanical department at the American Bell Telephone Company (soon to become AT&T) on 141 Pearl Street in Boston. Sabine must have worked there. Quoting my reference source, "This was, in effect, the first formal organization in the continuous chain of research and development organizations leading to the present Bell Telephone Laboratories."

Having been employed by Bell Labs myself in its early days, I was well aware that the company was actually formed in 1925 as a distinct corporation in the transition from the old Western Electric engineering department at 463 West Street in New York City. As time progressed, the various laboratory divisions were relocated in New Jersey and other parts of the country. Finally, as a result of the Bell System divestiture in 1984, the company name has now been