

The Alternate View Jeffery D. Kooistra

LENR Part II

In Part I of this column, I explained that “cold fusion” may not be fusion at all, and that the preferred term is now Low Energy Nuclear Reactions, or LENR. I also discussed my relevant experience as an experimental physicist; experience which led me to reject outright early claims that “cold fusion is all hooey,” based on hastily conducted experiments that failed to replicate the original result.

I promised that here in Part II I’d tell you of a new web-site where information can easily be obtained about careful experiments done by competent scientists which vindicate claims of the reality of LENR. The several-month delay I encountered in bringing you Part II brought along a silver lining, that being the publication of a new book on the sociology of the cold fusion phenomenon. Since this book goes as far as a book can toward answering the question, “If there’s really something to this cold fusion stuff, why haven’t I heard about it?,” I’m going to review it, too.

Critics might point out—and rightly so—that apart from early failed experimental replications (all of which may have been half-assed), there were sound theoretical reasons to doubt the claims of Pons and Fleischmann that they had achieved “fusion in a jar.” If ordinary deuterium-deuterium fusion had really been occurring in their cells, for instance, then the neutron flux that would have had to have been there to account for their measured excess heat would have killed them. Since they were alive, this argued strongly against fusion in a jar.

However, arguing against an explanation for an effect is not the same as refuting that effect’s existence. Excess heat was, in fact, measured.

So what happened? Why was cold fusion, now LENR, work held in such disdain?

To the book. It is called *Undead Science: Science Studies and the Afterlife of Cold Fusion*, by Bart Simon (Rutgers University Press, November 2002, ISBN 0-8135-3154-3). Simon is an assistant professor in the department of sociology and anthropology at Concordia University in Montreal. His book is a fairly even mix of sociology, history, and the philosophy of science as they all relate to cold fusion. I found this book exceptionally useful for coming to a correct understanding of why it is that cold fusion work still continues, even though the scientific community long ago dismissed cold fusion as “pathological science.” I wish I’d written it myself, though I doubt I could have done as well as Simon.

The only negative I see in the book for lay readers is that in spots the specialized jargon of the professional sociologist may prove difficult to understand. However, Simon writes very clearly and so this is a minor quibble indeed.

Simon's use of the term "undead science" for cold fusion is a good one, for the metaphor is particularly apt. As he puts it (p. 221): "... if we cannot allow cold fusion to be dead, we will not be able to see the myriad ways in which it continues to survive, always in the shadow of the life it desires but does not have." That desired life is, of course, acceptance of its legitimacy.

I strongly recommend this book because Bart Simon reaffirms the truths that I have independently come to know about the plight of cold fusion and the cold fusion or LENR researcher. For instance, on page 124 he says: "The cold fusion controversy did not end because Fleischmann and Pons were wrong; it ended because CF researchers found themselves lacking social and material resources to argue that they were right." This is part of the answer as to why LENR work seldom sees the light of day and why it languishes in the back alley of physics—the researchers have been deprived of the usual channels for grant money and publication. In short, you don't know about it because they haven't been able to tell you.

This deprivation is particularly difficult for LENR researchers to overcome because the good ones are used to doing their work in the usual way. On page 126, Simon writes (I had to truncate this a bit): "CF researchers work in university physics, chemistry, and engineering departments, they are well trained, and many have reputations as outstanding scientists for work they have done in other areas . . . (T)hey value the peer-review process . . . They do experiments following methodological norms that are indistinguishable from those of other experimental sciences; they value precision and accuracy in measurement . . . They seek to improve their experiments . . . To the casual observer there is nothing in the daily routine of most CF researchers that would indicate that what they do is in any way unscientific." Also, Simon notes on page 154: "The general assumption of most CF researchers is not that recognition of the phenomena should force a wholesale revision of nuclear physics and quantum mechanics but that cold fusion constitutes a special case of nuclear theory applied to the conditions of highly loaded Pd-D systems."

Since the typical LENR scientist is just like any other scientist in how he acts and in how he thinks, why does the disrepute problem persist? Because LENR workers are written off as pathological scientists from the get-go. Again, going to Simon, on page 103: "(T)he pathology thesis effectively competes with and then replaces other possible nuclear and chemical explanations for the phenomenon of cold fusion. In doing this, it serves to legitimate and ground claims that cold fusion is not real by offering a plausible explanation for both potential cold fusion-like anomalies in science and a continued belief in cold fusion by some scientists."

The only potential way I see around the prevailing LENR lack-of-legitimacy misbelief is to expose people to the truth. As I've discussed before, in conversations with those skeptical of LENR but otherwise willing to be convinced of the reality of the effect, I try to tell them where to go to read up on what's happened since 1989.

The problem has always been, however, that it isn't all that easy to just "go and read up" on LENR research. Many of the papers are hard to find, since even the best ones are not published

in the “prestige” journals that every college library is certain to have. And even if the papers are reasonably available, most folks simply are not going to track those papers down, even if it requires merely an hour or two at the local college library. Also, there isn’t any single paper that is likely to win over a skeptic. Indeed, one of the strongest arguments in favor of LENR from the point of view of the uninitiated is that there are so many papers available, that so many researchers around the world have been working on LENR and getting positive results. But what library is going to have more than a few papers, and how long will it take to find them in the stacks?

Wouldn’t it be nice to have a single place—a one-stop-shopping site—which would constitute a sizable source of papers on LENR-related work?

Such a site now exists: <http://lenr-canr.org>. (CANR stands for “Chemically Assisted Nuclear Reactions,” another alternate term for “cold fusion.”) The site comes via the work of Edmund Storms and Jed Rothwell. Dr. Storms is one of the few LENR researchers in the US who has been investigating the associated phenomena from the very beginning. He is also one of the few who had the necessary experimental expertise to do productive LENR work from the outset, as well as adequate facilities. Jed Rothwell’s background is in the software business, where he has been very successful. His interest in LENR goes back to the beginning, and he manages the web-site.

The site itself is wisely short on bells and whistles (in part because the fancy stuff can cause problems for users with slow modems or old computers, particularly those who reside outside the US), but richly endowed with information, all of it exceptionally well organized. I highly recommend that visitors read the four essays presented in the introduction. These essays provide a concise background to LENR, starting with what happened in 1989 and explaining how cold fusion came to be rejected by the scientific community. One essay is actually a science tutorial that will prove invaluable to visitors who are a bit cloudy on the differences between chemistry and nuclear physics.

But the heart of the site is the library, which doubles as an index of papers and books related to LENR. It is organized four different ways, each one mouse click away from the others.

When one clicks on “Library” on the home page, he’s taken to a page that has authors with papers available at the site. For instance, one might click on “Schwinger” (in the “Authors” sidebar on the left of the screen), and in the main window will appear the listing for seven (as of the night I’m writing this) papers by Julian Schwinger, and two of them will show a “Download” link.

But suppose you want to see all the papers indexed at the site? Then you just click on “All Authors” at the top of the screen and up they’ll come, with the authors’ names in alphabetical order. There are a lot of names—I counted 141 in the B’s alone (Dr. Storms tells me that about 4300 authors are cited, and 2900 references). Many of the authors have more than one paper listed, so you’re beginning to understand just how much material is out there. Granted, it isn’t all great material, but then, the index to The Physical Review lists a lot of dross, too.

Since I am by training an experimentalist, I particularly like the “Categories” arrangement of the available papers. Once that pops up, I can select from the menu on the left, say, “Experiment, Particle,” and up comes the listing for those papers. Here’s a good one: Iwamura, Y., et. al. Detection of Anomalous Elements, X-ray and Excess Heat Induced by Continuous Diffusion of Deuterium Through Multi-layer Cathode (Pd/CaO/Pd). This is just one of many experiments where transmutation occurs in an electrode simply by diffusing deuterium through it.

Finally, if you’re only interested in looking at papers that have appeared in journals you trust, you can click on the “Publications” option and easily find your way to that particular subset of the available literature.

Dr. Storms says that with this database, “a person will be able to find any paper about LENR and order a copy from the appropriate source.” New papers are made available for downloading nearly every day, and the founders hope that original work will soon be published there also. One more thing: the site is also reproduced on CD-ROM, so if you want one of those, send a message to editors@lenr-canr.org.

I imagine that for most of my readers, just seeing how many papers have been published about LENR since 1989 will prove eye-opening.

Alas, this will be my last shot (apart from referencing this column) at convincing people of LENR in these pages. The LENR scientist does have truth on his side, but little else—to be accepted into the mainstream these days requires more than that.

What bothers me most about the disrepute in which LENR work is held is not that I think the work will lead to a huge scientific breakthrough, though it might. It’s that LENR research is on the same level, in terms of budget, equipment, and expertise, as the thermoelectric power work I did in those summers of my youth. Someday, work on LENR will be routinely done in small college labs across the country. It’s a damn shame that today’s crop of young scientists is missing out.